IMPLICATIONS OF RESTRUCTURING AND PRIVATISATION FOR COMPETITIVENESS AND PERFORMANCE: TWO BRAZILIAN STEEL COMPANIES

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Doctor of Philosophy

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The thesis examines the effects of the privatisation process on productivity, competitiveness and performance in two major Brazilian steel companies which were privatised in between 1991 and 1993. The case study method was adopted in this research due to its strengths as a useful technique allowing in-depth examination of hte privatisation process, the context in which it happened and its effects on the companies. The thesis has developed a company analysis framework consisting of three components: management, competitiveness/productivity and performance and examined the evidence on the companies within this framework.

The research indicates that there is no straightforward relationship between privatisation, competitiveness and performance. There were many significant differences in the management and technological capabilities, products and performance of the two companies, and these have largely influenced the effects of privatisation on each company.

Company Alpha's strengths in technological and management capabilities and high value added products explain strong productivity and financial performance during and after privatisation. Company Beta's performance was weak before the privatisation and remained weak immediately after. Before the privatisation, weaknesses in management, commodity type low value added products and shortage of funds for investment were the major problems. These were compounded by greater government interference. Despite major restructuring, the poor performance has continued after privatisation largely because the company has not been able to improve its productivity sufficiently to be cost competitive in commodity type markets.

Both companies state that their strategies have changed significantly. They claim to be more responsive to market conditions and customers and are attempting to develop closer links with major customers. It is not possible to assess the consequences of these changes in the short time that has elapsed since privatisation but Alpha appears to be more effective in developing a coherent strategy because of its strengths.

Both companies accelerated their programme of organisational restructuring and reducing the number of their employees during the privatisation process to improve productivity and performance. Alpha has attained standards comparable to major international steel companies. Beta has had to make much bigger organisational changes and cuts in its labour force but its productivity levels still remain low in comparison with Alpha and international competitors.

Key words: iron and steel industry, privatisation, restructuring, technological capability, productivity, performance, competitiveness, management.

To Heliane, Igor, Odete and Salvador

for their love, support and prayers

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1. INTRODUCTION

1.1. The research project

This research is about how privatisation and restructuring affect the competitiveness and performance of manufacturing enterprises in Brazil. The study focuses on the Brazilian steel industry which has an important role both economic and social. As an example, iron and steel products account for 14.0% of the total Brazilian exports (Exame, June/1996:21). Brazil is the world's eighth largest steel producer and accounts for 3% of the world's production. It is the main Latin America steel maker (Baring Securities/Brazilian Company Report, 22 June 1993). Just as a matter of comparison, in 1994, the Brazilian steel industry output was approximately 50% higher than the British (The Economist, 29 April 1995:21). In 1994, the twenty largest steel producers employed over 85,000 employees and turnover was approximately $13.2bn in US dollars for that year (Exame Melhores e Maiores, August 1995:241).

This investigation has two main objectives. They are:

- Within the Brazilian steel industry, to examine two steel producers that underwent privatisation and the consequences this may have for performance and competitiveness
- To identify the characteristics that lead some companies to improve their competitiveness and performance under privatisation and others not to do so

This thesis reports the findings of a research project which began at the end of 1992 and finished in 1996. The aim was to analyse the changes in performance and competitiveness of companies that underwent a privatisation process.

The research examines the privatisation process, competitiveness and performance outcomes in two major Brazilian steel companies located in the state of Minas Gerais. These enterprises carried out privatisation between 1991 and 1993. All the major changes started before 1991 and carried on after that as well. The Brazilian steel industry has been totally privatised since the end of 1993, when the last company went into private hands.

The examination of the evidence and analysis seeks to make a contribution to the growing literature on the impact of privatisation on enterprises in developing and industrialising countries. See for example, Shirley (1993).

1.2. Research framework and privatisation

In order to investigate the relationships between restructuring and privatisation and its implications on performance and competitiveness, this study has devised a framework based on Buckley, Pass and Prescott (1988). A detailed explanation of the research framework adopted is given in Chapter 4.

The privatisation of Brazilian state-owned steel companies started in the mid 1980s under the supervision of the Brazilian Development Bank (BNDES). However, privatisation only gained momentum after the introduction of structural reforms initiated by the Brazilian Government in 1990. The privatisations of Alpha and Beta, the two firms studied, are a consequence of that reform and change of people's attitude.

Preparations for privatisation of Alpha and Beta demanded a restructuring programme that began a few years before privatisation itself and is still continuing. The restructuring process was important to give to the then-state-owned companies financial viability and a shape that could attract as many buyers as possible. From the steel industry, Alpha was chosen as a show-case since it was considered by experts to be the best "performer" in the steel industry. Doing so, the government of the day expected to raise the privatisation process profile in the general public and encourage a wider share ownership. Beta was the last steel company to be privatisated after it underwent a rigorous restructuring programme.

Privatisation is a widely discussed and controversial issue. The debate and subsequent implementation of the privatisation programme first started in the United Kingdom under the Conservative Government in the early 1980s. After that, privatisation has been a focus of attention and argument all over the world. Nowadays, privatisation is an integral part of business restructuring of a great number of state-owned companies worldwide. For many

governments, it is a means of reducing the burden on public finances and easing the problem of controlling public expenditure.

The key question, of course, is to what extent the privatisation process enhances competitiveness and performance capacity of an organization. This appears a deceptively easy question to address at first sight. However, the multiple definitions and criteria for defining organizational *performance* and the multiple levels of analysis through which one might examine *competitiveness* (industry, firm and international levels, for example) create a complex and intricate web of possible relationships. Before outlining the framework for this research, it is first necessary to examine in some detail what is meant by the terms competitiveness and performance - and at which level of analysis any potential links between privatisation and performance might be empirically revealed.

1.3. Competitiveness and performance

Over the last decade sweeping changes have affected the whole world economy, characterised by a structural shift in most international markets (Dicken, 1992). New players have appeared in the international arena, countries such as South Korea, Taiwan, Singapore, Thailand, Malaysia, Indonesia, Brazil, Mexico, China, India, and so on that are willing to improve their profile and their role as distinguished players in the world economy. A way such countries devised to achieve that has been through a range of economic and political measures to help their enterprises to succeed. Economic reforms, reduction of import tariffs on hardware and technology, incentives to export, introduction of economic stabilization programmes, privatisation of state-owned enterprises, and so on.

Economic activity is becoming increasingly globalized, the world is facing an unusual and more sophisticated integration of scattered activities. Globalization of economic activities has led to an 'era of turbulence and volatility in which economic life in general is being restructured and reorganized both rapidly and fundamentally' (Dicken, 1992:1). The economic and social certainties of the 1950s seem to have vanished.

The last two decades have been inundated with transnational corporation cases that have failed to keep up with the competition.

Companies such as IBM, General Motors, ICI, GEC, Olivetti, Phillips once considered the *"prima donnas"* by industry, are now struggling to survive and compete against newcomers (Doyle, 1994). They did not realize or maybe did not want to recognize how fast things had changed over the past decades making products, companies, economies outdated in a very short period of time. The increasing globalization of economic activities has demanded an almost total different approach from most economic players. The economic environment has never ever been like that before.

Readiness, planned and quick adjustments or sometimes radical shifts are far too important to be left to chance. Due to the relentless and swift changes that are taking place worldwide one needs to build and improve constantly to keep abreast with the new realities that come up so quickly and in such generous doses. Anyone that wants to survive in this 'global village' should be concerned with those factors that allow growth and prosperity to take place, in spite of the fierce and sometimes fatal competition. Such factors are flexibility, strategic vision, integration, partnerships, environmental pressure, competitiveness and performance.

Competitiveness has been considered the key issue to economic success and future prosperity in this new globalized economic reality. The astonishing economic growth of Far Eastern countries has led the USA, the European Community, Australia, Brazil, and others, to consider competitiveness as the number one priority. There is no light at the end of the tunnel if one is not able to produce goods and services that will meet the needs of potential clients.

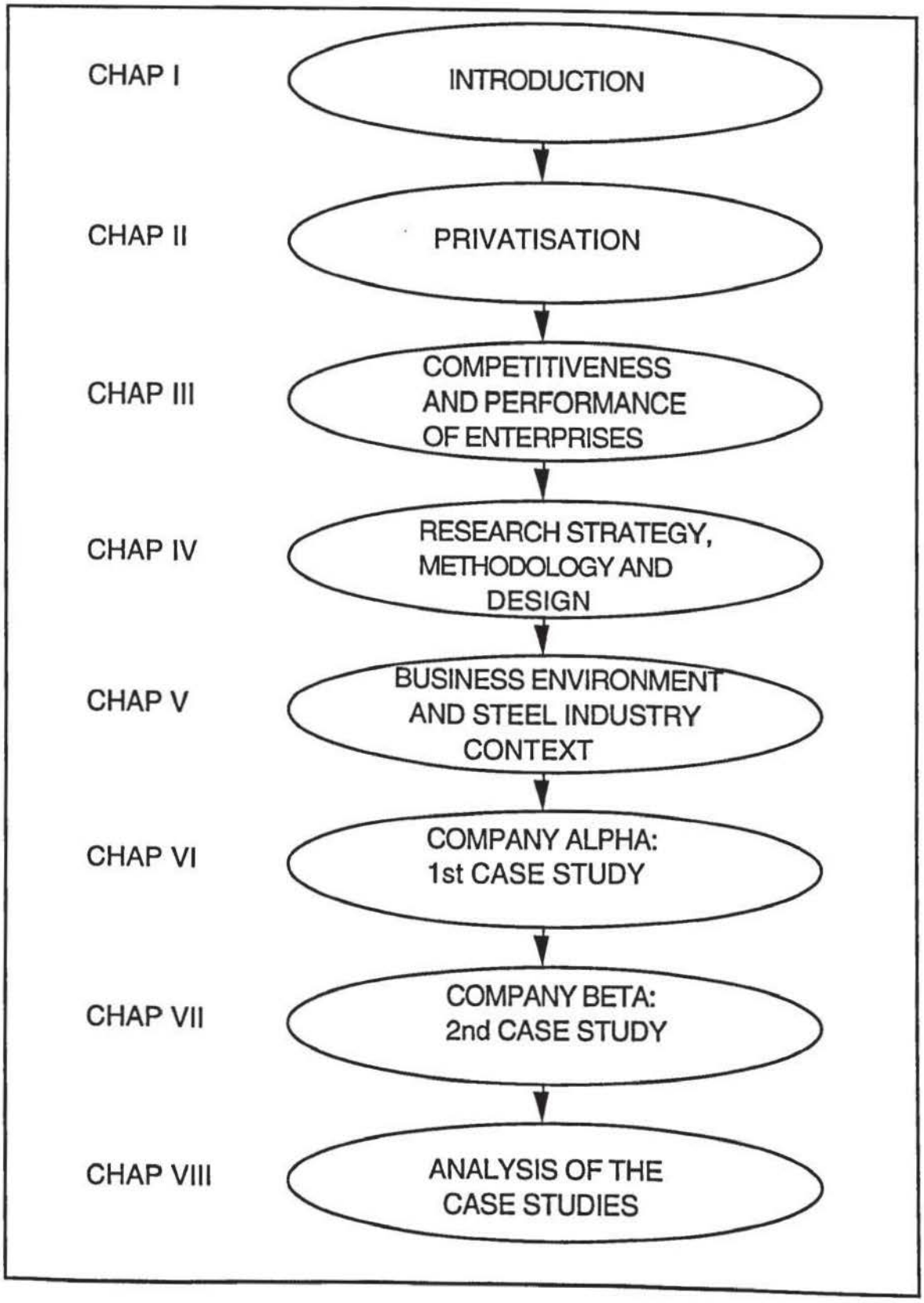
To understand competitiveness one is required to look at different levels of analysis, productivity, the role of government, the standard of living, the institutional reality, education and training, quality of management, innovation and technology, creativity, risk-taking attitudes, entrepreneurship, and so on. It is clear that competitiveness is not a one-shot goal since it involves and requires multidisciplinary and multifarious viewpoints.

This research argues that, even when studying firms which trade internationally, competitiveness is more fruitfully studied at the level of the firm. The assumption here is that without the basic competences and resources in place at the level of the individual

firm, competitiveness at the international level will be at worst, impossible and, at best, extremely short lived.

A key question, therefore, is what factors might constitute competitiveness at the level of the firm to enable some degree of advantage when trading in an international context. Buckley, Pass and Prescott (1988) argue generally that the firm level of analysis is crucial since competitiveness comprises a combination of firm performance, potential and management. More specifically, such factors can be narrowed down interalia to the ability of a firm to transform and renew; to innovate; to learn and to develop a culture or climate to foster competitiveness. The research question, at this level of analysis, thus becomes to what extent government macro strategies, such as privatisation, facilitate or hinder such firm level factors of competitiveness. In the extreme, it may be that privatisation has virtually no influence over these factors. This research addresses these questions from the context of two Brazilian firms in the recently privatised steel manufacturing sector. Figure 1.1 depicts the overall plan and structure of the thesis. Chapter 3 expands the competitiveness debate in detail.

Figure 1.1 STRUCTURE OF THE THESIS



2. PRIVATISATION

2.1. Introduction

This chapter starts by examining the concept of privatisation and related aspects. This is followed by an overview of some of the main issues related to privatisation such as ownership, competition and deregulation, and natural monopolies. In addition, the chapter provides a section reporting the international experience on privatisation. There is a brief section on the Brazilian privatisation experience.

As Parker (1993) states, privatisation has been changing the economic, social and political environment for business. It has created new opportunities and challenges for governments and business people worldwide. Privatisation appears to be an attractive and feasible alternative to public ownership. It apparently allows companies freedom and flexibility to operate and succeed in a competitive environment.

2.2. Definitions and principles

Privatisation has been an integral part of business restructuring in many countries. It has been considered as a means of reducing expenditure in the public sector and creating favourable conditions for the newly privatised companies to improve performance, increase autonomy for strategic decision-making, while creating more flexibility, gain the freedom to negotiate and form business alliances and response rapidly to changes and opportunities in the market place.

The word "privatisation" is used in a broad sense to represent the reduction of public sector involvement in production of goods and services including liquidation of state enterprises, sale of publicly owned assets as going concerns or otherwise and the introduction of private operators into the public sector through leasing, management contracts and contracting out (World Bank, 1994; Ramanadham, 1988). In the narrow sense, "privatisation" is the sale or transfer of ownership of a state enterprise or agency as a going concern to the private sector (Molz, 1990; Thompson, 1988). In this sense, an

enterprise is normally deemed to have been privatised if more than 50 per cent of share ownership is transferred to private hands. Kirkpatrick (1988) describes privatisation as consisting of two components:

(a) a change in the ownership of an enterprise from the public to the private sector (i.e. the narrow definition), and

(b) deregulation of activities previously restricted to public sector firms with the intention of increasing competition.

Privatisation is a widely discussed and controversial issue with much debate on the pros and cons. However, there are relatively few studies of changes in the strategies and international scope of industrial enterprises as a consequence of privatisation. This research examines the privatisation of two Brazilian industrial enterprises and its implications for competitiveness and performance.

One of the main reasons why privatisation has been adopted in many countries is largely due to a reaction to the flaws in the public companies in terms of bad performance, profitability, and failure to assure proper transparency in their management and operations (World Bank, 1983). Through privatisation it is expected that companies will be accountable for their results, with increasing efficiency and better management. Additionally, the government's revenue needs have been fulfilled by the money coming from the privatised enterprises helping to ease the public budget. Even more benefits can be reached, in political terms, with the broadening of share ownership throughout the whole of society. Also, it is worth saying, the reduction of restrictions on market entry would help the competition process to move forward. One of the best means to be sure that the scarce resources available will be properly used it is through increasing the level of competition between firms. It will force the proper use of all resources physical as much as human capital.

2.3. International experience

The current increase in privatisation activity and the related debate originated in the United Kingdom when the Conservative Government initiated the privatisation programme in the early 1980's (Kay, Mayer and Thompson, 1986). Nevertheless, the

enterprises that were privatised in the 1980's worldwide were concentrated in a relatively narrow range of countries. According to Shirley (1993), the World Bank database indicates that there were 6800 privatisations in the world between 1980 and 1991.

Table 2.1 shows that 78 percent of the privatisations were in Eastern Europe (including GDR). In Latin America, the bulk of privatisation activity was focused in Mexico and Chile. Mexico privatised or liquidated 400 of its 1155 State Owned Enterprises (SOEs) during this period. Between 1973 and 1989, Chile privatised all but 23 of its 524 SOEs. During the early 1990s, the pace of privatisation has accelerated with many more countries such as Brazil and Argentina introducing privatisation programmes.

Table 2.1 Number of SOE's Privatised Worldwide, 1980-1991

Regions	Enterprises privatised	
	Number	%
* Former GDR (a)	4500	66
* Eastern Europe (excluding GDR)	805	12
* Latin America and the Caribbean	804	12
* Sub-Saharan Africa	373	5
* OECD countries	170	2
* Asia	122	2
* Middle East and North Africa	58	1
* Total	6832	100

Source: Adapted from Shirley, M. (1993)
a. GDR: German Democratic Republic

To the proponents, privatisation is an integral part of business restructuring of SOEs. For the government and the public sector, it is a means of reducing the burden on public finances of subsidising loss-making activities and easing the problem of controlling public sector pay and providing appropriate incentives. In addition, the

government may have wider objectives such as developing private capital markets and widening share ownership. For the enterprises themselves, the move from public to private ownership and management is expected to improve commercial performance through changes in efficiency, quality, cost consciouness, responsiveness to markets and customers, organisational and technological effectiveness and rationalisation of business (Goodman, Loveman, Gary, 1991; Hammer, Hinterhuber, Lorentz, 1989; Kay, Mayer, Thompson, 1986; Kirkpatrick, 1988; Parker, 1993; Soares, 1993).

It is generally recognised that for privatisation to lead to improved enterprise performance and to benefit consumers, it must be within a competitive market framework (Bishop and Thompson, 1992). In the absence of a competitive market structure, an adequate regulatory regime is required.

In order to improve its performance, a privatised enterprise normally has to make major changes in its strategy and operations taking account of aspects such as competition, capacity extension, broadening a product line, know-how, research and development capability and patents, access to markets, long-term or short-term investment, guaranteed sales and so forth. The main arguments in favour of privatisation for the enterprise include an opportunity to be free of the ties and knots of the state-owned management and freedom to 'shake' the organizational and cultural structure. There is also an opportunity to eliminate the excessive reporting norms and procedures characteristic of SOEs. Privatisation allows a significant rationalization of the working processes in many functional areas, contributes to a more focused approach on cost efficiencies in production, allocating and exploiting available resources. Other major changes due to privatisation are related to greater autonomy for handling financial transactions, better access to capital markets and finance (Hammer, Hinterhuber, Lorentz, 1989).

At the broad national level, improving economic performance and increasing living standards through more efficiency, competition and delivery of better products with fair prices are often put forward as the main objectives of privatisation. To the Malaysian Government the objectives of privatisation are to promote competition and improve efficiency, stimulate economic growth, reduce the role of

government and bureaucracy, relieve the burden of public enterprises and increase the opportunities for entrepreneurship and ownership (Parker, 1993). In practice, in many industrialising and developing countries, notably in Latin America, the Caribbean and Africa, privatisation is often a consequence of the government's need to reduce public sector budget deficits or the debt burden.

2.4. Ownership

The ownership issue is very relevant when privatisation is under discussion. Moore (1992) states that state ownership itself is to blame for the poor performance of SOEs because of three reasons:

(a) their survival is not dependent on success;
(b) their commercial objectives often conflict with, or are subordinated, to political objectives, and
(c) there is a failure to control the pursuit of self interest by politicians, managers and employees.

There are numerous cases of waste, corruption, bribery and inadequate management in state-owned enterprises and agencies (Parker, 1993). According to the Reason Foundation (1991) "The shift in ownership or control from public to private hands will necessarily lead to cheaper, better services for the citizenry." However, this is not always true.

The simple transfer of ownership from public to private hands by itself is not sufficient to improve the performance of an enterprise. The experience in the United Kingdom shows that there is much public concern about the transfer of monopoly power from public ownership to private and the consequences of the abuse of such monopoly power. From time to time, there is public outcry against the abuses of monopoly power by the British privatised public utilities, notably in the water supply, electricity and gas industries. However, systematic research on the implications of privatisation on the various stakeholders is limited.

This research examines the transfer of ownership of two industrial enterprises in the Brazilian steel industry which presents a certain degree of competition. There is not a monopoly power as in the public utilities.

2.5. Competition and deregulation

> *Competition is indisputably the most effective means - perhaps ultimately the only effective means - of protecting the consumers against monopoly power. Regulation is essentially a means of preventing the worst excesses of monopoly; it is not a substitute for competition (Littlechild, 1983).'*

Competition is considered by many as one of the most important mechanisms available to a government to deal with monopoly power and maximising consumer benefits (Beesley and Littlechild, 1986; Moore, 1983, 1992; Kirkpatrick, 1988; Linowes, 1991; Ramanadham, 1988; Thompson, 1988; BNDES, 1991). Its fundamentals are based on freedom to enter and to withdraw from a market as well as contest against other competitors. The aim is increased rivalry between companies that brings about better products and services, providing good quality and reasonable prices.

Moore (1983) is enthusiastic when he points out the benefits of greater competition. He argues it is a mechanism with extraordinary efficiency. It makes sure that goods and services available and desired by customers can be bought at the lowest cost. Hence, it does not need politicians or civil servants to intervene. As a result, there will be a greater chance that success will be achieved. In fact, Moore states that

> *'the long term success of the privatisation programme will stand or fall by the extent to which it maximises competition. If competition cannot be achieved, an historic opportunity will have been lost.'*

As Moore (1983) and Kay et al (1986) believe the competitive process can make a great contribution to stimulate much more efficient production which is one of the central arguments in support of privatisation. Competitive forces operate in many ways within the private markets. First, there is competition in the marketplace to fulfill consumer needs. Second, competition for firms via takeovers. Third, there is competition amongst shareholders to influence managerial decision-making. Finally, the threat of bankruptcy. In

short, two broad conclusions are shown by Kay et al. First, the economic performance of all firms is supposed to increase when there is a competitive environment. Second, if competition is absent private companies will be at a disadvantage to public ones.

Only elimination of restrictions (deregulation) to market entry will allow an increase in competition and through this improvement in quality, price and delivery can occur. Protected markets tend to be sluggish and not concerned with needs of customers. Companies and their managers become complacent because they are not frightened of the possibility of being expelled from the marketplace.

To Linowes (1991), competition should be present in all economic and social human activities. Consumers should have a choice when they want to buy goods and services. In general, when there is choice there is competition. When competition prevails there will be greater chance that customers will come first, not the interests of a minority. A state-owned company which fails to attend to customers' demands normally does not go bankrupt, as a private firm does. It is well-known that public companies without financial and commercial pressures tend to be less efficient and slower to respond to changes when compared with private ones. Indeed, if government presence is overwhelming in the marketplace there will be all the conditions to gag the private sector and bring about a less effective business environment.

There is no better way to protect the consumers' interests than by allowing companies to compete with each other. The marketplace in general offers the right environment to keep prices down and quality and service up. Without competition, a private company can abuse its monopoly power as well as a state-owned enterprise can. For that reason, the government must have some kind of control to avoid negative market manipulation by potential monopolies. Unfortunately, there is not so-called perfect competition.

As addressed by Beesley and Littlechild (1986), if there is a genuine interest from the government to increase competition, there will be a price to pay in terms of augmenting of production costs and reduction of economies of scale or scope related to public utility industries. In fact, the breaking up of a company, a monopoly for example, can be a solution to allow potential competitors to come along. By doing that, the government will create the incentive for the

formation of new companies, increase competition, and permit market forces to settle down. Political and administrative forces interference will die away. Moreover, companies should expand or contract according to what market forces impose. When there are few competitors the government should intervene to allow newcomers to dispute their share of the market.

In sum, competition is the means that will bring about the benefits of privatisation for the whole of society. It is the way to avoid products and services of bad quality flooding the market. In the end, a competitive environment will be built up based on elimination or reduction of barriers to foreign trade and investment, breaking up monopolies and increasing deregulation (BNDES, 1991).

2.6. Natural monopolies

Many publicly owned companies can be considered natural monopolies. This is clear in industries like railways, airports, telecommunications, electricity, water and gas supply. According to Sharkey (1982), natural monopoly occurs when a single company produces the total supply of an industry more cheaply than a number of competing firms. Due to cost reasons there is no justification to have more than one transmission and distribution system of, for example, water, electricity, and gas in a specific area. It is not sensible to have many pipelines from different suppliers on the same street available to clientele. Economies of scale and scope should prevail allowing a single firm to supply the market at lower costs than several firms. For that reason, the probability of having more than one supplier of any public utility is quite difficult. The problem that arises from that concerns the risks of exploitation by private monopoly supply in terms of poor quality service and higher prices. At this moment, government must be present to keep pressure on suppliers to avoid damaging customers' interests. Unfortunately, companies exploiting sectors with natural monopoly characteristics tend to be quite powerful and have much clout with the Government.

There are two important questions to be analysed. Firstly, it is feasible to introduce a sort of competition for some of the products or services supplied by natural monopolies. Secondly, if is not possible

to have any kind of competition, which measures should be set in place in order to have some kind of regulation? (Kay at al, 1986).

In the case of British Gas, Hammond, Helm, and Thompson (1986) argue that transmission and distribution networks are a typical case of natural monopoly. Since a single firm is able to delivery the outputs more efficiently and cheaply than a group of firms. Taking this into account government must introduce tough regulation to curb any movement from the private monopoly towards a market dominance. However, activities related to the sale of gas, the sale and servicing of gas appliances (boilers, cookers, and central heating) should have a different approach. Here, it is possible and feasible to stimulate the entry of new suppliers. The entry barriers should be eased to allow the emergence of several competitors.

Backed by the examples above, the possibility of introducing competition into certain products and services offered by natural monopolies is possible. Nevertheless, when the implementation of competition is impossible the government must introduce strict regulation to avoid the misuse of the market by private monopolies. In the UK, the regulatory system has been successful, to a certain extent, in controlling the prices of the utilities. For example, British Telecom calls have been reduced by about 40 percent since privatisation in 1984. The regulatory model approved asserts that prices are restricted each year by a formula connected with the retail prices index. As Littlechild (1983) argues, regulation is a stop-gap waiting for full implementation of competition. This is, according to him, the best way to fight monopoly.

2.7. Strengths and weaknesses

Generally speaking, the main arguments in favour of privatisation include the opportunity to be free of the entanglements of state-owned management and the freedom to 'shake' the organizational and cultural structure. There is also the opportunity to eliminate excessive reports, standards and procedures, characteristics of public companies. Privatisation allows a significant rationalization of the working processes in many functional areas, contributes to a more focused approach on cost efficiencies in production, allocating and exploiting of available resources. Other major changes due to

privatisation are related to greater autonomy for handling financial transactions, better access to capital markets and finance (Hammer, Hinterhuber, Lorentz, 1989).

The benefits of privatisation are many, according to Moore (1983). Managers have more freedom to use their expertise and exploit new opportunities. Companies are more aware of the needs of their particular business and clientele and tend to rely more on capital markets rather than on government advice and help. In general, privatisation brings more freedom to run businesses, since company managers are free to seek better opportunities for the company's interests. When a company becomes private it is not submitted to excessive government red tape. There will probably be an environment where people will be free to explore all their potential to bring about the best they are capable of, in order to achieve better results with fewer resources. Creativity is usually stimulated, supported and rewarded through a meritocratic system.

In general, it is assumed that employees from private companies tend to be more productive and efficient than their colleagues in public-owned companies, maybe due to much more pressure to get results and a smaller number of people to do the same amount of work. Another possible benefit from being in the private sector is concerned with market. Differently from many state-owned companies, a private enterprise is expected to be tuned to market needs and changes. Constantly, private companies should monitor the market to foresee the trends and ways the public is shifting in, in terms of their demands. At least, companies should keep pace with the changes that are going on to avoid being surprised. Nowadays, increasingly, the pace of change is such that almost no one can afford to pay the price of not adopting a proactive approach. In fact, it is a question of survival in a world where, basically, only the fittest can carry on in business. It has been a very tough time for companies. Being proactive has become imperative in modern times. Bearing this in mind, the companies most likely to survive will be those focused on customers' needs and capable of delivering what their clientele does not yet know what they will need or use in future. For this reason, private companies, in general, are more flexible and manageable than public-owned enterprises to fill the gap.

Privatisation has brought about benefits for a great number of companies and for theirs employees. To promote wider share ownership, offers of shares are made to employees in very favourable conditions. This allows them to become owners and workers at the same time. As a result, tens of thousands of employees have taken advantage of the opportunities that have been made available. As a consequence of that, workers-turned-owners have become more motivated and concerned about issues like cost reduction, product quality and delivering. Most of them have begun to switch off unnecessary lights, take much more care of vehicles and equipment than they used to. Now, they know if the company makes a profit they will be compensated through dividends.

However, privatisation may be a way to increase job satisfaction and pride. Private companies workers sometimes are viewed being more involved, have greater self-esteem and motivation. On the other hand, in many public companies, regrettably, employees are regarded having low-esteem and morale; maybe due to lack of drive, low consumer-attention and institutional constraints.

The benefits that can be conveyed by privatisation are not only for the employer and employee, but basically, the consumer. The process is concerned with giving clients a bigger range of products, supplied with better quality and at a reasonable price. It means breaking the monopolies, increasing competition and deregulation and promoting efficiency.

On the other hand, the main arguments against privatisation state that a public company does not necessarily have to make a profit; the interests of a private company are attached to the shareholders' interests more than those of the stakeholders; a state-owned firm is much more concerned about the needs of the public as a whole than a private company. Usually, public companies have a greater long-term perspective, are more concerned with employment, the environment and national security whereas private companies have short-term objectives related to profit-making.

Figure 2.1 PRIVATISATION: STRENGTHS AND WEAKNESSES

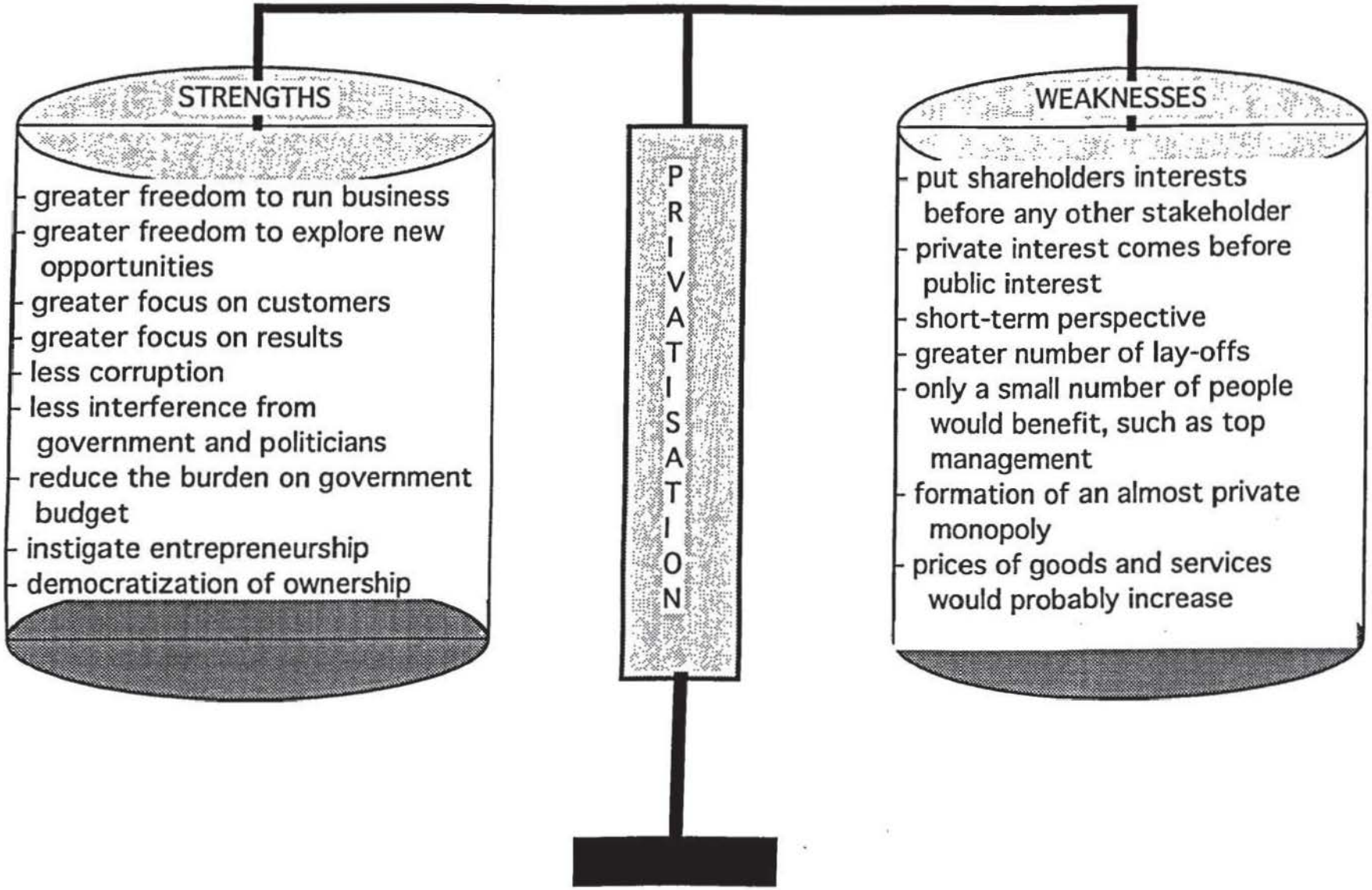


Figure 2.1 summarises the main strengths and weaknesses of privatisation. Of course, privatisation has a slightly different meaning and range according to the context in which it is happening. For example, in some countries it has been an alternative to reduce the interference of government and politicians on the SOE's management.

2.8. Overview of the Brazilian Privatisation Programme

The structural reforms of the Brazilian economy started in 1991 by the Government aimed at the modernization of the economy through economic stability, trade liberalisation, opening up of the economy, improving foreign relations and fiscal adjustment (BNDES, 1994). The country has been witnessing a great number of changes over the last years in terms of ending the trade barriers on computers, reduction of import tariffs, opening up of telecommunications and electricity to private sector competition, concession of public utilities, agreements with the Paris Club, private banks, and International Monetary Fund (IMF). Nevertheless, much remains to complete the process to cut government spending, reform the state, the social security system and civil service, reduce the red tape and lower the gap between rich and poor.

As an essential part of the structural reform, the privatisation program is expected to play a fundamental role as a means to reduce the participation of the state in the economy as well as helping to decrease the public deficit. The Brazilian Privatisation Program "allows the government to focus resources and efforts into areas such as education, health, housing, security and sanitation where its presence is essential, contributing to redefine the role of the state in the Brazilian economy" (BNDES, 1993).

The Brazilian Government states as a main objective of its privatisation programme the redefinition of the role of the state in the economy via reducing its size and limiting its scope to specific government obligations such as health, education, and welfare. The broad objectives of the programme are summarised in Table 2.2.

Table 2.2 Brazilian privatisation programme objectives

• Objectives	* Transfer to the private sector all economic activities not adequately developed by the state
	* Concentrate efforts and resources on the basic government activities such as education, health, infrastructure, policing, housing and defense
	* Lower domestic and foreign public indebtedness
	* Foster domestic competition among local companies through a programme of modernisation
	* Promote an increase in share ownership so that the domestic capital markets get stronger

Source: BNDES, March/1994

Table 2.3 displays the main stages of the privatisation operation. According to a BNDES (National Bank for economic and social development) report (1991), the first stage consists of choosing and recommending a company to the Republic President and, after that, formally adding it to the process. The following steps consist of hiring private consultants and auditors, submission and approval of candidates' proposals, analysis, and so on. The last stages are made up of approval of the method of sale, publication of sales notices and, finally, public auction (BNDES, 1991:13).

Currently, the privatisation process has become painfully slow. Trade unions, left-wing parties, state-owned company employees are among those that are against privatisation. Other restrictions are related to regulation of natural monopolies. There is little experience on this subject. Most probably, some external advice will be necessary to speed up the whole process. However, according to the Government, a quick sell-off could bring in too much foreign money at once, so affecting the exchange rate.

Table 2.3 Privatisation operation procedures

	* A company is chosen by a selected committee to be submitted to the President and formally included in the process
	* Private consultants and auditors are hired by public tender
	* Submission and approval of candidates' proposals
• Stages	* Analysis of proposals, selection of consultants and signing of contracts
	* Consultancy work is performed
	* Method of sale is approved
	* Sales notices are published
	* Public auction

Source: BNDES, May/1991

2.9. Conclusions

This chapter intended to provide the background for a better understanding of the privatisation process as the two industrial enterprises of this research underwent a change in ownership in recent years.

Privatisation has been considered one of the last means to work out the fortunes of the state-owned companies fortunes. A policy that was embraced simply by accident, but turned out to be a central issue for Mrs Thatcher's Government. "A policy which has no clear-cut objectives, but has become almost an end in itself" (Bishop and Kay, 1988). A policy that started in Britain and ended up sweeping the whole world. Almost all governments from all corners and shades have been preaching the benefits of privatisation to their citizens, companies and to their societies as a whole. However, it is worth

remembering that "had the Thatcher Government failed to be re-elected in 1983, it is unlikely that any other country would have taken on the mantle in promoting the virtues of privatisation and deregulation" (Curwen, 1994). The amount of effort some governments put into this issue to give support to the ideology of a leaner state, dynamic and less involved in non-typical governmental activities, has been overwhelming.

There have been significant improvements in many privatised enterprises. Performance has been raised, however without significant difference from those companies that are still publicly owned (Bishop and Kay, 1988). There is not a straightforward answer to the benefits of privatisation. As a matter of fact, privatisation must be carried out under certain considerations and precautions. As addressed by Curwen (1994), mistakes can and will almost inevitably occur during the introduction of privatisation. Nevertheless, due to lack of sufficient time to learn and absorb other countries' experiences, some Eastern Countries have been forced to introduce privatisation as quickly as possible as a means to instigate the recovery of their economies, after the fall of communism.

Privatisation by itself is not enough without taking into consideration interests of the society as a whole not just shareholders' and chief executives' interests. It is regrettable that in some cases governments are using privatisation as a tool to keep themselves in power and gather political support for their causes and personal interests.

Finally, another claim by privatisation supporters is that it has been a useful instrument in reducing corruption, irregularities, excesses as well as helping former state-owned companies to become much leaner, more efficient, flexible, swift and competitive. The future still seems interesting to privatisation.

Alpha and Beta are enterprises in a manufacturing industry facing an environment which has been made more competitive through market liberalisation measures. Therefore some of the disadvantages related to transfering public enterprises with monopoly power to the private power sector are less serious. The aim of the study is to provide greater insights into the internal changes in enterprises undergoing privatisation than is usually provided by the debate on this subject.

3. COMPETITIVENESS AND PERFORMANCE OF ENTERPRISES

3.1. Introduction

This research, as previously mentioned, takes the level of the firm as its main point of departure for examining competitiveness. However, it is clear that such a level of analysis needs locating in the intellectual terrain of other perspectives such as the industry or cross-national levels. This chapter attempts to summarise the multi-level perspectives on competitiveness and to locate the firm level perspective within them.

Several academic groups, government, businessmen, managers, economists, and the public in general, have been discussing the issue of competitiveness on different levels. Maybe the most important change in relative position this century has been Japan's move to the top in world competitiveness. In 1993, for the eighth consecutive year, Japan was considered the best despite its declining domestic business confidence and increasing protectionism. Many other countries have followed Japan's path: Hong Kong, Singapore, Taiwan and South Korea. More recently, countries like China, Thailand, Indonesia, Malaysia have been trying to improve their competitiveness level. Both Europeans and Americans are concerned about the decline of their competitiveness. In the United States scholars from leading universities and management schools, devoted to research and teaching on the improvement of the competitive performance of the USA in the global economy, have founded a network called Consortium on Competitiveness and Cooperation. The CCC has received benefits from the major American corporations, including IBM, General Motors, Xerox, General Electric and Hewlett-Packard. It is dedicated to spreading its ideas and findings to industry, government and professionals from many areas of knowledge.

Most Western industrialised countries are looking for answers to improve competitiveness in private-ownership business, management, institutional arrangements and national infrastructure, education and training, cultural restraints, government policies and long-term investment.

3.2. Definitions

There are many different definitions of competitiveness and competitiveness means different things to different people, finding a single definition is not an easy task. See, for example, European Management Forum, 1984; Harvard Business Review, 1987; Scott and Lodge, 1985; Porter, 1990; HMSO, 1985,1994; Krugman, 1994. Different authors stress different aspects and sometimes have a totally singular concept of competitiveness. The problem is to decide which qualitative and quantitative aspects should be stressed. For some competitiveness is a question of increasing the nation's living standard, for others it is connected with a firm's ability to compete and successfully market its goods and services worldwide. Apart from understanding the factors affecting competitiveness, it is necessary to identify indicators, for example costs, prices, productivity, profitability, balance of trade, export market share and technology capability, by which changes in competitiveness can be assessed.

According to the *Chambers English Dictionary*, competitiveness is related to or characterised by competition, eg giving a chance of successful results in conditions of rivalry. However, this definition does not clarify whether the rivalry is at the level of enterprises, industry or nations and the role of government policy

Many definitions have stressed competitiveness at the national level and company level. The Report of the President's Commission on Industrial Competitiveness (US GPO, 1985) and Scott and Lodge (1985), on their definitions of competitiveness, emphasizes the role of a nation as a fundamental factor in increasing the living standard of the population. The more a nation augments its capacity to compete in the worldwide arena the more probable its people will enjoy a better quality of life. In other words, it means

> *'a nation state's ability to produce, distribute, and service goods in the international economy in competition with goods and services produced in other countries, and to do so in a way that earns a rising standard of living. The ultimate measure of success is not a "favorable" balance of trade, a positive current account, or an increase in foreign exchange reserves: it is an*

increase in standard of living. To be competitive as a country means to be able to employ national resources, notably the nation's labor force, in such a way as to earn a rising level of real income through specialization and trade in the world economy (Scott and Lodge 1985).'

On the other hand, The Report of the President's Commission on Industrial Competitiveness outlines a definition of competitiveness based on free and fair market conditions, whereby a nation can increase its degree of competitiveness through products and services that meet the tastes, quality and price demanded by the international markets and, at the same time, uphold or augment the real incomes of its people.

Another way to understand competitiveness is at the company level. The Aldington Report (HMSO,1985) and the European Management Forum (1984) both have concepts of competitiveness based on a company. The Report from the Select Committee of the House of Lords on Overseas Trade (The Aldington Report) understands competitiveness of a firm as follows.

'A firm is competitive if it can produce products and services of superior quality and lower costs than its domestic competitors. Competitiveness is synonymus with a firm's long-run profit performance and its ability to compensate its employees and provide superior returns to its owners.'

This definition highlights the importance of a firm being capable of supplying the market with products and services that give good value for money, through better quality and lower costs than other companies. It is worth stressing the long-term perspective, the need to recognize the role of the employees in the success of the undertaking, as well as the need to offer adequate remuneration to investors.

Likewise, the European Management Forum sees a firm's competitiveness as being very much related to its ability to surpass both national and external competitors using price and quality as the main factors. It means that

'the immediate and future ability of, and opportunities for, entrepreneurs to design, produce and market goods worldwide whose price and non-price qualities form a more attractive package than those of foreign and domestic competitors (European Management Forum 1984).'

Porter, during his period as a member of The President's Commission on Industrial Competitiveness during Ronald Reagan's Presidency, had some difficulties clarifying the meaning of the term in question. These were his words:

'What became clear to me during the term of the Commission was that there was no accepted definition of competitiveness. To firms, competitiveness meant the ability to compete in world markets with a global strategy. To many members of Congress, competitiveness meant that the nation had a positive balance of trade. To some economists, competitiveness meant a low unit cost of labor adjusted for exchange rates. Partly because of these differences, much energy has been expended in the United States debating whether there is a competitiveness problem at all. The debate about competitiveness raged on, and still does today (Porter,1990).'

Porter clearly recognizes the existence of different approaches to the meaning of the term ranging from firm level to national level, from cost of labour to positive balance of trade. However, whatever the definition of competitiveness chosen it will not be generally accepted and capable of embracing all interpretations and viewpoints. It is quite difficult to reconcile many of the explanations already available. For Porter, the answers to competitiveness are related to improving capabilities and performance of specific industries and industry segments.

As far as this research is concerned, the definition of competitiveness to be based upon the Aldington Report. Namely, *a firm is competitive when it is able to offer products and services of greater quality, lower costs, and make customers happier than when served by rivals.*

Different competitiveness frameworks and approaches and the role of government and related issues are discussed next.

3.3. Competitiveness frameworks and approaches

> *'The diversity of the measures of competitiveness used by researchers, suggests that ideas about this complex concept vary greatly ..... When statistical measures have been used to show, for example, that one firm performs better in the market place than its competitors, and has generated and sustained more competitive potential, the qualitative information derived from researching management processes helps to explain the reasons for success.' (Buckley, Pass and Prescott, 1988).*

The competitiveness issue has been focused on by a great number of practitioners and researchers over the last few decades at the individual firm, industrial sector or national level (Beckerman, 1979; Pettigrew, 1985; Coates and Hillard, 1986,1987; Buckley, Pass, Prescott, 1988; Francis, 1989,1992; Best, 1990; Pettigrew and Whipp, 1991; Georghiou and Metcalfe, 1993).

3.3.1. Buckley, Pass and Prescott

Buckley, Pass and Prescott (1988) question the validity of using single measures alone that cannot explain the complex dynamics of competitiveness and the meaning of the term in the presence of uncertainties. Measures have to determine the level of analysis (country, industry, enterprise or product) and comprise key elements. These key elements can be categorised into three groups (Tables 3.1 and 3.2): competitive performance, competitive potential, and management process.

According to the authors, these three (3Ps) groups (Performance, Potential, Process) describe different stages in the competitive process. Performance measures the results of the operation with respect to percentage of manufacturing in total output, sales, profitability, balance of trade and so on.

Potential measures delineate the inputs into the operation in terms of technology, productivity, access to resources, comparative

advantages, and so forth. Finally, management process indicators are items such as government policies, commitment to international business and education and training.

The interrelationship between the 3Ps is considered to be a dynamic process. The three groups of measures are interdependent. Competitive performance group measures help the management process to take decisions based on relevant information that can bring better results for the firm, the industry and the country. In its turn, management process has an important role in terms of actions that will create the right environment to improve the competitive potential measures. The latter makes the competitive performance measures sustainable and at the same time can generate the resources that will be controlled by the management process.

3.3.2. Scott and Lodge

Scott and Lodge (1985), in their research on USA competitiveness, point out that the fundamental measure of success in competitiveness is an increase in the standard of living of a nation. Therefore, national competitiveness implies, by using national resources, specially the nation's labour force, an augmenting of the real income of the workers.

In spite of the fact that they emphasise the competitive problems as being at national level, they do recognize the role of companies in the whole process of competing. Scott and Lodge stress that the current industrial activity is much more science-based (e.g. electronics, pharmaceuticals, chemicals, electrical equipments, biotechnology, etc.) than before, which means, in other words, national competitiveness depends on technology, capital investment, a well qualified workforce to be able to reach the demands of a modern and competitive economy.

Table 3.1 Group of measures by level of analysis

LEVEL OF ANALYSIS	GROUPS		
	COMPETITIVE PERFORMANCE	COMPETITIVE POTENTIAL	MANAGEMENT PROCESS
• COUNTRY	* export market share * % manufacturing in total output * balance of trade * export growth * profitability	* comparative advantage * cost competitiveness * productivity * price competitiveness * technology indicators * access to resources (may vary by industry)	* commitment to international business * government policies * education/training
• INDUSTRY	* export market share * balance of trade * export growth * profitability	* cost competitiveness * productivity * price competitiveness * technology indicators	* commitment to international business (trade associations, etc.)
• FIRM	* export market share * export dependency * export growth * profitability	* cost competitiveness * productivity * price competitiveness * technology indicators	* ownership advantage * commitment to international business * marketing aptitude * management relations * closeness to customer * economies of scale and scope
• PRODUCT	* export market share * export growth * profitability	* cost competitiveness * productivity * price competitiveness * quality competitiveness * technology indicators	* product champion

Source: Adapted from Buckley, Pass and Prescott (1988)

Table 3.2 Measures of competitiveness at firm level and their meanings

MEASURES	MEANING
• export market share	* percentage that one firm or industry, etc. has of the global volume of goods or services
• export growth	* increase of sales abroad by one nation, industry, firm or product
• profitability	* profit over investment
• cost competitiveness	* a firm/industry is more competitive when it has one of the lowest costs
• productivity	* output per person, value added per employee
• price competitiveness	* a firm/industry, etc. is more competitive when it has one of the lowest prices
• technology indicators	* research and development expenditure, number of patents, number of qualified scientists and engineers employed, royalty income, licensing, etc.
• ownership advantage	* ability of firms to guarantee and to keep profitable market share
• marketing aptitude	* to satisfy the consumer needs through a better product design, product performance, positioning, servicing, delivering, etc.
• management relations	* it is connected to improvement on internal and external relations

• economies of scale and scope	* economy of scale: bigger production that allows cost reduction economy of scope: greater number of products that allows reduction on production costs
• commitment to international business	* more involvement in international affairs by government, companies, and education system (proficiency in foreign languages and cultures)
• closeness to customer	* closer relationship with customers so that their needs can be understood and met

Source: Buckley, Pass and Prescott (1988)

According to Scott and Lodge, national competitiveness cannot be measured by a single dimension. Several dimensions (see Buckley et al.) must be taken into account when analyses of competitiveness are being carried out, since competitiveness raises so many questions in terms of past achievements, overall performance, goals and commitments, and comparison with foreign' results.

Measurements of competitiveness should not be circumscribed in the past, but on the contrary, should embody both present and future, as well. For that reason, the key indicators are almost the same, whatever the level of analysis.

3.3.3. Pettigrew and Whipp

Adopting a multi-dimensional approach towards a better understanding of competitiveness, Pettigrew and Whipp (1991), recognize two key dimensions of competitiveness: the level of analysis and the element of time, as showed in Table 3.3. The former is comprised of three different levels of analysis: firm, sector and national/international economy. Each level has its major characteristics and measures.

According to the authors a competitive capacity occurs when a group of characteristics act together. It is not enough to identify only

the measures related to a firm's competitive position. To know what is going on in the whole process a recognition of the measures related to industry and economy dimensions must be considered. What can be inferred from the authors' viewpoint is that competition is something that should be understood as a whole. Rarely can one single fact or single dimension explain the overall picture. The competitive performance depends on that recognition.

Pettigrew, Whipp and Buckey et al. have a similar understanding of the concept of competitiveness. They agree that the concept cannot be viewed as anything static but dynamic as the rules and facts concerning competition can change suddenly through time. Changes can happen at any moment, at any level of analysis, although varying across the whole spectrum.

Further, the multi-dimension and dynamic view of competitiveness is related and complemented 'by a contextual and processual understanding of strategic change.' So, for Pettigrew and Whipp, there is a link between competitive performance and capacity to adapt to important changes that happen over time in the firm's environment (Table 3.4). Thus a firm's ability to compete within a certain industry/economy relies on two aspects:

- competence to recognize and comprehend the competitive forces that are in place and how they are modified according to the circumstances
- capacity of a business to organize and manage all resources available towards a chosen competitive way.

Whatever the strategy chosen, the authors recognize the importance of undertaking the changes that need to be made. They consider that a critical aspect. They stress the role of management as crucial to evaluate the environment, decide which options to be followed and carry out the necessary actions that must be taken to achieve successful results. Management attitudes can explain varying performances between companies.

Table 3.3 Dimensions of competitiveness: level of analysis over time

LEVEL OF ANALYSIS	TIME BASES OF COMPETITION
• ECONOMY (national/international)	* cost structure * exchange rate * finance/industry relationship * government intervention
• SECTOR (industry)	* market structure * industry mature * commercial networks
• FIRM	* chosen strategies/capacity to change * bases on which firm decides to compete * price * quality * production lead times * distribution networks

Source: Pettigrew and Whipp, 1991

Finally, Pettigrew and Whipp are keen to stress their multi-level concept of competitiveness as something new that had not been explored before them. They mention a common weakness of previous models (e.g. microeconomics models) that overlooked a holistic view of competition. These models fail to recognize the existence of multi-aspects such as economic, social, political relationships, national cultures, institutional arrangements and so on (Chamberlain, 1933; Lenz, 1980; Barney, 1986; Bain, 1956; Caves, 1980; Porter, 1981; Schumpeter, 1950; Nelson and Winter, 1982; Francis, 1992).

Table 3.4 Competitiveness and the three dimensions of strategic change

DIMENSIONS	MAIN COMPONENTS	
• PROCESS	* change managers * models of change * formulation/implementation * role of technology * language * time	
• CONTENT	* assessment and choice of products and markets * key objectives * assumptions * targets and evaluation	
• CONTEXT	INTERNAL * resources * capabilities * culture * politics	EXTERNAL * economic * business * culture * politics

Source: Pettigrew and Whipp,1991

3.3.4. Microeconomics

Three microeconomic concepts of competition can be identified: Industrial Organization, Chamberlinian, and Schumpeterian. All three concepts do not address the level of competition as being something broad that embraces more than one or two level of analysis (Table 3.5).

The Chamberlinian Competition model emphasizes the remarkable capabilities of the firm. An important source of competitive advantage for firms is related to their ability to exploit a whole group of resources in such a way that allows them to overtake their competitors.

Chamberlain lists some aspects that can bring about differences between firms in terms of performance and efficiency: talent of managers to work together, product reputation, technological know-how, patents, trademarks and so on.

Given the differences between firms related to skills, abilities, and experiences, Chamberlain suggests that firms should choose strategies that most stress their capability to exploit individuality and uniqueness. This will allow firms to improve their market position and increase the ability to compete.

In its turn, the Industrial Organizational (IO) model, different from the Chamberlinian model perspective, has as central point the relationship between the firm and the industry. The structure of the industry defines the level of return that a firm will probably get. The main elements of that structure include number and relative size of firms, barriers to entry, product differentiation in the industry, and elasticity of demand. The core concepts of IO are structure, conduct, and performance. Within this paradigm, firms should try to find means to modify the structure of their industry so that it can have high returns on investment.

Contrary to the IO and Chamberlinian models, the Schumpeterian model stresses the relevance of instability and uncertainty as main factors in his view of competition. The former two models consider the existence of a certain level of stability in the competitive dynamics under which firms are submitted. This can let firms, to a certain extent, take measures to avoid being surprised by unsuspected threats or, conversely, take advantage of the opportunities that appear.

For Schumpeter (1950), the fundamental impulse of the capitalist engine is related to the creation of new methods of production, new markets, development of new forms of industrial organization and so forth. This process of 'Creative Destruction' brings uncertainty and insecurity to the environment of firms, in other words, firms are facing the existence of another more unpredictable variable: luck. As a result, the process of competition turns out to be even more complex.

Table 3.5 Characteristics of microeconomics models and level of analysis

LEVEL OF ANALYSIS	MODELS		
	Chamberlinian	I. Organizational	Schumpeterian
• ECONOMY			* process of creative destruction * instability and uncertainty are fundamentals on competition *fundamental impulse of the capitalist engine is related to creation of new markets,new forms of industrial organization, etc.
• INDUSTRY		* relationship between firm and industry is fundamental. * Structure of industry defines return of firm * core concepts: structure, conduct, performance	
• FIRM	* a firm should exploit its uniqueness and individuality through technological know-how, product reputation, patents, trademarks, etc.		

Source: Adapted from Barney, 1986

3.4. Role of government and related issues

> *'Business - not governments - create wealth. The primary responsibility for improving competitiveness must lie with firms. The Government's role is to create the conditions in which firms throughout the economy can improve competitiveness.' (HMSO, 1994).*

Understanding the role of government in the marketplace has been the focus of many studies looking for the reasons and justifications for direct intervention or absence of it that can bring about good results for different economies (HMSO, 1994,1995; Howard, 1990; Porter, 1990; Prowse, 1994:15; Stephens and Goodhart, 1994; Thurow, 1990; US GPO, 1985).

In 1994, the British Government issued a comprehensive white paper on competitiveness pointing out the performance of British Industry and its relationship with government since 1979 (HMSO, 1994). The idea that only market forces are capable of defining better ways for increasing British competitiveness has been buried. The document is clear when it acknowledges the vital role of the government in supporting, creating a climate, and intervening, if necessary, to help businesses to succeed.

The government's role is to build up an appropriate environment in which companies can increase their capacity to compete worldwide. Having taken that idea into consideration, the British Government seems determined to provide a stable macroeconomic environment, stimulate efficiency through adequate allocation of resources, support new businesses via realistic tax policies, and improve services offered by the public sector.

As a sound attitude, a government should avoid over-regulation that obstructs business interests and innovation, limits consumer choice, and overburdens companies. It must be sure that competition prevails and is encouraged. Monopolies should not be allowed to expand their interests without complying with the public benefits. A government should have a proactive role in the marketplace, just intervening when goods and services are not properly delivered. In other terms, it must restrict itself in areas where the private sector is not able to develop the process of wealth creation better than the

public sector. Finally, it should ensure that education of good quality is available for the whole of society as a matter of crucial importance to the national competitive advantage.

The Report of the President's Commission on Industrial Competitiveness (US GPO, 1985) recognizes the role that the government has to play to help business to succeed. First of all, it must lead the way to increase national competitiveness through adequate and responsible measures that are of its responsibility. According to this report, a government must select competitiveness as a main priority and, at the same time, point out to the whole of society its importance to the living standard of the population; take measures to guarantee a stable macroeconomic environment; stimulate the dialogue between leaders in industry, labour, government, and academia; lower the cost of capital for companies through a fiscal reform and monetary policy and tax laws; increase the potential of companies to compete via adequate domestic and trade laws; create an environment that improves the flow and fairness of word trade; take joint actions with educational institutions so that people can be better prepared and trained, and in so doing that, be able to respond to changing markets and technologies quickly.

From these different perspectives, the role of government continues to be important. Governments cannot be omitted. Intervention should happen when markets fail to reach levels of efficiency or competition that will better serve the interests of the whole society.

3.4.1. Management

> *'Successful companies are led by people with a clear vision of the company's objectives and how to be achieved, who recognise the need to change and innovate. This is essential for large and small companies alike.' (HMSO, 1994).*

Another key element related to competitiveness is management. It plays a fundamental role into the success of any undertaking. Qualified and skillful managers are essential for the well-being of any company. For that reason, it is not uncommon to

see certain managers being offered huge sums of money to change from one place to another. Successful managers know quite well how important the involvement and commitment of people at all levels is to reach the company's objectives. Successful managers are well trained and competent. Management of people, processes, products and services require a great deal of knowledge, expertise, team-work, leadership, decision-making, trust, and so on. In fact, good management is the efficient way to provide customers with the products and services they want.

Since available resources are limited, high quality management is needed to achieve the most from the least, in both public and private sectors. For the British Government, companies should be aware of their responsibility towards raising management performance and, as a consequence, undertake the right measures to bring this about. In addition, companies can expect some help from the Government, particularly, in terms of easier access to a range of available business services, as well as, identifying, spreading and stimulating the use of better management practices (HMSO, 1994).

In a competitiveness survey (HBR, 1987) carried out by Harvard Business Review, one of the reasons why America's competitiveness is declining (as stated by the HBR readers), rests on the shoulders of the American managers. For the HBR survey the main cause of the weaker competitiveness is poor management. Almost 90% of the responses point out managers' attitudes and views to competitiveness as being unconcerned and unengaged. But, at the same time, 97% HBR readers see the solution to this problem in the hands of managers and their ability to improve management skills, to seek to change their concepts and reduce their resistance to new ideas.

The competitiveness issue has been under discussion by the British Government since the relative decline of the economy began over the last decades. In conformity with a report produced by the Department of Trade and Industry (DTI), the British industry is weak and it is struggling to catch up with other industrialized economies. Besides factors such as low investment in technology and inferior products, one aspect that is striking is concerned with the low level of management displayed by the majority of companies (Lorentz and Smith, 1993). In fact, continues the report, the biggest weakness

found in British manufacturing is due to managers. They are blamed for the deplorable situation of the industry. Mainly because, when compared with overseas managers, they are less-educated and trained and have failed to manufacture winning products that can match similar foreign goods. As a result, the DTI points out that management is still a matter of concern and must be improved to help the British industry to compete on a worldwide basis.

For Pettigrew and Whipp (1991), competitiveness has a multi-dimensional perspective. Thus, management attitude will be quite important. Accepting this multi-level and dynamic view of competition, it will demand a great deal of effort and skill from managers. Indeed, to match this holistic approach, management should be able to undertake changes, evaluate the environment, choose adequate options, make flexible arrangements and decisions that can meet the requirements of each situation. The more successful the management in dealing with this dynamic approach the more visible will the difference between the performance of firms be.

Scott (1985) and Rugman (1987), share with Pettigrew and Whipp, the view that management should be able to adapt and make decisions bearing in mind the existence of different environments and circumstances that will affect the level of competitiveness.

3.4.2. Productivity

> *'Productivity Movement was introduced as one of the principal strategies to achieve economic growth, international competitiveness and at the same time make social contributions, ultimately leading to a better quality of life.*
> *The need to increase the productivity level of the country requires organisations, especially business enterprises, to increase the productivity of their operations. Organisations need to assess their productivity levels using a reliable productivity system and methodology.' (Malaysian National Productivity Corporation, 1992).*

Competitiveness and productivity are intimately bonded. There is no way to separate one from the other. Greater competitiveness

usually means higher level of productivity. Paul Krugman (1994) states that for an economy, productivity is the key behind the notion of competitiveness. It means a better level of productivity should help the nation's growth and bring about a rise in living standards. Sharing the same viewpoint, Elstrodt and Lopetegui (1994) declare that "the higher a nation's productivity, the higher its population's standard of living. At the company level, productivity is one of the key factors that fuels competitiveness. Productivity growth is the driving force of economic growth and higher per capita incomes." Prowse (1994), Porter (1990), Scott (1989), Thurow (1990) and most economists regard productivity as being the primary determinant in the long-term of a country's living standards. It is the basic element of national per capita income. According to Porter, cheap labour and exchange rate are not so significant to competitiveness as grasping the determinants of productivity as well as the rate of productivity growth.

Malaysian National Productivity Corporation (1992) defines productivity as being a ratio of output generated to inputs consumed. In other words, productivity is expressed as follows:

Productivity = Output/Input

Outputs are all goods and services produced by a company. Inputs are the resources utilized by it to get the outputs: labour, energy, capital, materials, and others. Thus, productivity means the ability to get the most from the least. It is a measure of efficiency, performance.

Balls and Goodhart (1994), Buckey et al. (1988) all connect competitiveness and labour productivity. In terms of international competitiveness one fundamental measure has been the cost of labour, since it has grown over the last few decades in industrialized economies. Thus, there is evidence of a great interest to increase labour productivity so that the level of competitiveness can be raised and, as a consequence, maintain the living standards and be able to fight the cheap labour from the developing countries. For example, European labour productivity (output per person-hour) has been increasing at 2 percent a year since 1979, according to Balls and Goodhart.

Lorenz and Smith (1993), set out that the fundamental output by a Department of Trade and Industry (DTI) report on Britain's

manufacturing industry is that the manufacturing productivity levels in Britain are at least 25% below those of France and Germany; 35% of Japan and 45% of the United States. In spite of the British productivity growth throughout the 80's this was not enough to catch up with the productivity of other European countries (Francis, 1992). Meanwhile, in the USA manufacturing productivity grew at 5.3 per cent in 1993 and 4.3 per cent in 1992. Productivity as whole augmented 1.6 per cent in 1993 and 3.1 per cent in 1992 (Prowse, 1994).

3.4.3. Innovation

> *'Innovation - the successful exploitation of new ideas - is essential for sustained competitiveness and wealth creation. A country aiming to keep ahead of its competitors needs companies which innovate. Successful innovation requires good management, appropriate finance, skills and a supportive overall climate.' (HMSO, 1994).*

Innovation can be the difference between survival and death. Nowadays those companies unable to rediscover and reinvent themselves continually, in terms of new products and services will probably disappear. Since companies face one of the most competitive and hostile environments ever seen; attitudes, values, and perceptions should change to adapt to new realities. New competitors have been appearing throughout the world from the most distant places and countries. Thanks to free trade, new markets, and the spread of technology, information and knowledge have been reaching all corners.

The British Government White Paper on Competitiveness, understands innovation as the successful exploitation of new ideas - either major cultural, organisational or technological changes, or just incremental or minor achievements or modifications. Scientific and technological advances as well as developments in industrial and commercial activities are valuable parts of innovation. Thus, any change that can lead to an increase in competitiveness should be welcome. Unlike decades ago, when it was possible to carry on selling

products without any changes for a long time and keep the market-share intact, today this approach would be suicidal.

Companies must accept that they need to be prepared and take actions before an environment that is tough and will not allow the presence of weak firms. As a result, decisions should be made within the organisation to stimulate innovation; to acquire external skills and know-how; to train employees in new technologies; to be up-to-date in terms of new equipment and processes; and increase the collaboration with universities and research institutes (HMSO,1994). All these measures and actions should allow companies to tackle the innovation issue with the proper means and weapons.

According to Porter (1990), companies can only succeed in international markets and accomplish their targets through decisive actions of innovation. The approach must be the broadest possible, which means involving new technologies and different ways to do things. In reality, innovation, to be implemented, demands pressure, necessity, and sometimes failure. In spite of all the potential benefits that can be gained, successful companies, in general, are afraid to undertake innovations and changes. This is not a natural option. On the contrary, fear of losses has been a powerful element in imposing modifications. Successful companies have a tendency to become attached to stability and predictability. They turn out to be unconcerned about new ideas and proposals. At this moment, they are at the beginning of their downfall. Business literature has plenty of examples of companies that failed to carry out changes when they were at the top. Unfortunately, success usually carries the virus of failure.

Geroski and Machin (1992) set out that innovating companies are most often faster-growing than their competitors; more profitable and can maintain average sales and growth above non-innovators, mainly due to new products and innovations that will meet consumer demand. So they are open to suggestions from their employees, keep an eye on leading innovative companies, and are able to create a favourable climate for innovation. Often they have an internal culture that stimulates a relaxing and enjoyable working atmosphere.

3.5. Conclusions

Competitiveness means different things to different authors. Scott and Lodge (1985), Porter (1990) and Krugman (1994) see improvement in competitiveness as the way forward to rising standard of living. For Buckley at al. (1988), competitiveness is an ongoing process, depending on comparison and its measures can be categorised into three groups: competitive performance, competitive potential and management process. Then, Pettigrew and Whipp (1991) relate competitiveness with a holistic perspective coupled with two dimensions: the level of analysis and the element of time.

The concept of competitiveness is better understood when it takes into account different levels of analysis. Each level of analysis (country, industry, enterprise and product) has a set of specific measures that allows an insight into the particularities of the concept. Also, the interrelationship between levels of analysis can contribute to success of each other. A company level success provides greater chances to country level success and vice versa.

The role of government may or may not increase this level of competitiveness. When governments do intervene to increase savings, select niches to develop, keep a stable macroeconomic environment, encourage new enterprises to set up, maintain a strict control of public expenditure, increase public assets efficiency, reduce corruption and mismanagement, prioritize education, research and development, technology and innovation, and so forth, it may be that competitiveness is enhanced.

However, management is another factor considered important to enhance competitiveness. When poor management is present it is very hard to overcome barriers and obstacles to achieve an increase in competitiveness or to implement the actions of government deregulation or privatisation. The burden of poor management of course will be on the managers' shoulders. So it is no surprise that companies want to contract the best managers because they know a good manager can be the difference between profit and loss. The trouble is how to find a good manager or to prepare him or her. Having a Master of Business Administration (MBA) alone is not necessarily a guarantee of competence. In the 1990s besides having a business diploma, a manager may require vision, equilibrium,

excellent ability to deal with people in different positions, flexibility, endurance, determination and clarity about goals and targets, and involvement in most matters related to competitiveness and commitment to long-term achievement. The question is whether competitiveness can be achieved by privatisation strategies alone, or to what extent competent management and management knowledge can facilitate and enhance competitiveness.

4. RESEARCH STRATEGY, METHODOLOGY AND DESIGN

4.1. Introduction

This research is a study of two steel companies located in the state of Minas Gerais. Both companies were privatised at the beginning of the 1990s. Workforce, finance and marketing issues, technology and corporate development are some of the main aspects that experienced modifications under private control.

The general research question relates the effects of privatisation on competitiveness and performance of industrial enterprises. The research question clearly identifies the enterprise as the appropriate level of analysis. The two companies to be studied were chosen out of a group of eight privatised Brazilian steel companies. Alpha was chosen as the best Brazilian firm in 1995, after four years as a private company, by a Brazilian business magazine, Exame. The second company, Beta, was the last steel enterprise to be privatised. The two companies were selected by the researcher due to their relevance to the research, size, accessibility, location, and cost considerations. The data collection was carried out over a three-month period in 1994, from August until October. Further updated information has been gathered through the help of people within the companies, colleagues in Belo Horizonte, from company literature, and financial information.

Throughout the field work the researcher sought information, both written and spoken, company documents, magazines, newspapers, etc. Without underestimating the context and the difference between what certain people say and what they would like to say. Access to quantitative and qualitative data is always a constraint in this type of research and its implications for the research is considered below.

4.2. Research strategy and design

The Brazilian Government initiated the privatisation programme at the beginning of the 1990s giving special attention to the steel industry. It was chosen as a showcase for the Brazilian public and external investors as the steel industry was the least

controversial industry to undergo a privatisation process at that time. It was the first industry to be totally privatised and it was quite convenient for the researcher as many of the newly privatised steel companies are located in the state of Minas Gerais, where the researcher has his residence and job. From that point onwards, the research strategy began to take shape to suit the reality already in place.

In the first place the level of analysis had to be chosen. Country and industry levels were definitely out of question as they were not feasible due to the limitation of time, the size of the country and total costs involved. Also, competitiveness is gained at the enterprise level within the context of the industry, economic circumstances, government policy, and the broader context. Thus, the level of analysis had to be at company level. It was considered the most convenient and appropriate before the circumstances at that time: resources and time constraints. The analysis at firm level has its advantages as it allows a deeper knowledge and understanding of a few cases as the case study method was chosen to carry out this research. It opens the opportunity to build up a far-reaching relationship with some of the people in the chosen companies. As a consequence, the researcher is able to get to know in detail the day-to-day reality of the business.

The next stage would entail the selection of an event that could become the turning-point for comparing the competitiveness and performance of companies. Privatisation arose as the main occurrence that could fulfill the watershed role as it was considered "the fact of the day" and probably the main contributor in changing the face of government involvement in business matters as an administrator and shareholder.

Out of three potential firms to be analysed, two were selected at the end of the fieldwork, one being rejected due to lack of available relevant information. All three were privatised between 1991 and 1993 and were undergoing reorganization and restructuring programmes for about three years in preparation for possible privatisation. Prior privatisation, all three firms were part of SIDERBRAS which was the holding company for the state owned steel companies.

Table 4.1 sets out some of the main research design issues and a brief description of them.

Table 4.1 Research design

Issues	Description
• Level of analysis	* Firm level
• Theoretical framework	* Modified Buckley, Pass and Prescott framework
• Identity of empirical field	* Industrial sector: steel industry Country: Brazil Companies: Alpha and Beta
• Research method	* Case study: descriptive and explanatory
• Data collection process	* Sources of evidence: academic literature, business journals and newspapers, company documents, archives, interviews, direct observation
• Research management process	* Data analysis strategy: relying on explanatory and analytical frameworks. Reporting with linear-analytic structures (standard approach for research reports) (1)

(1) See Yin, R. K. (1993)

4.3. The company analysis framework

The aim of the research framework is to provide an overview and description of the main aspects and components involved in the restructuring and privatisation of the two case studies.

Figure 4.1 sets out the three phases of the changing of ownership. It shows the different stages of restructuring and related privatisation that took place in the two steel companies. Industrial restructuring happens when a company takes actions to bridge gaps between the current and intended situation. These gaps come out due

to changes in technology, organization, marketing, and factor prices. Experience has demonstrated that restructuring at the firm level does not happen automatically in consequence of macroeconomic policy shifts or rapid changes in overall conditions. So restructuring of macroeconomic policy changes (privatisation for example) needs government intervention to establish directions that facilitate the changes required at the firm level (Lieberman, 1990).

Pre-privatisation and restructuring situation represents the stage when actions start to be taken to prepare a company to be privatised. Generally, it entails a great deal of restructuring that affects areas such as personnel and finance, for instance. It was the moment when the government took decisions in order to make the company most attractive for potential buyers. Next, it is the restructuring and privatisation stage after the decision to privatise has been made. Finally, comes Stage III when as a privatised entity, a company freed from government decrees and directives, starts taking actions to explore the opportunities available in the market place.

Figure 4.2. displays the main constituents of a "Company Analysis Framework" used in this research. The framework is based on Buckley, Pass and Prescott (1988) study on measures of international competitiveness (see chapter 3 for more details). It is a modified version of the framework in the study mentioned above and focuses on competitiveness at the firm level. The company analysis framework is an attempt to explain the process of change in ownership, mentioned previously, and its consequences on a company. It comprises three groups:

- MANAGEMENT
- COMPETITIVENESS AND PRODUCTIVITY
- PERFORMANCE

Each group embodies a number of measures, indicators and qualitative assessments intended to explain the dynamics behind the process undergone by the two case study companies. The items in the three groups help to assess the implications of privatisation for competitiveness and performance.

As the focus is on the firm level, it is necessary to distinguish between changes internal to the firm and one in which the

management have control and the external changes such as shifts in government policies. The external environment of the firm comprises all those influences that intervene in the enterprise's performance and the way the top management take decisions. Among the external influences is the neo-liberal policy adopted by the Brazilian government, in the beginning of 1990's, intended to expand foreign trade, curb inflation, reduce import tariffs, reduce the public burden, increase competition, and deregulate the business activities. Other external influences are the creation of the Mercosul common market (Brazil, Argentina, Uruguay, and Paraguay) that opened new business opportunities for a great number of companies, recovery of the domestic economy in the outset of 1990's, the implementation of a economic stabilization programme, lifting of the domestic market steel price controls, car makers increasing demand, and recovery of the steel industry worldwide.

Among the internal influences are the drastic reduction of the workforce, different goals and values of the two companies, different technological capabilities, excessive hierarchical levels, management affected by political interference, great uncertainty on the boardroom and among employees, relationships with competitors, suppliers and customers.

Management components in the framework are those related to the way a company is constituted, organized, formulates and implements strategies and policies. These strategies and policies are the main internal influences on the competitiveness and performance of the companies. Broadly, management decision-making acts on the "Competitiveness/Productivity" components to improve them as well as the performance. Management is a critical aspect that plays an important role in any organization. Six components of management identified as having the most significant influence on competitiveness and performance are ownership, governance, autonomy, incentives, organizational structure, and strategy.

Competitiveness/productivity group embodies those measures that help the management to achieve a better performance and makes performance sustainable. It is the link between management and performance. The success of a company is dependent on the way management deals with the competitiveness components. These measures influence productivity in quantity and value/unit terms.

They are mainly internal: workforce, R&D, technological capabilities, production capability and finance/investment; and external/internal: products, price/deregulation, market strategy and relationship with customers.

Performance group is constituted of those measures that provides management the information needed to improve and assess the outcome of a company's operations. It helps the management to carry out changes according to the results achieved. Performance measures the success or failure of a management and bears a close link with the competitiveness/productivity group. Performance is dependent on management and competitiveness/productivity measures groups as well as influence them.

Productivity is one of the most commonly used and accepted measures influencing cost competitiveness. Also, Profits and Earnings per share are the two most used measures of financial performance (Kay, 1993:193). PBIT (profit before interest and taxation)/total assets and PBIT/sales are amongst the most popular profitability ratios (Samuels, Wilkes, and Brayshaw, 1995:52). Sales margin (net profit over sales) and return on equity (net profit over stockholders equity) are also very often used as a profitability ratios that take into account net profit. Sales/total assets or asset turnover is an important ratio that indicates how a company is capable to produce profits. Further measures used are costs, sales, market share, exports and value added. Most of the ratios and other measures listed are widely used by the main Brazilian business magazine to evaluate the largest 500 industrial, commercial and service companies in the private sector and the top market leaders in 23 main sectors of the Brazilian economy (Exame, 1995) and accepted by experts to be relevant to the Brazilian business environment.

Figure 4.1 Research Framework

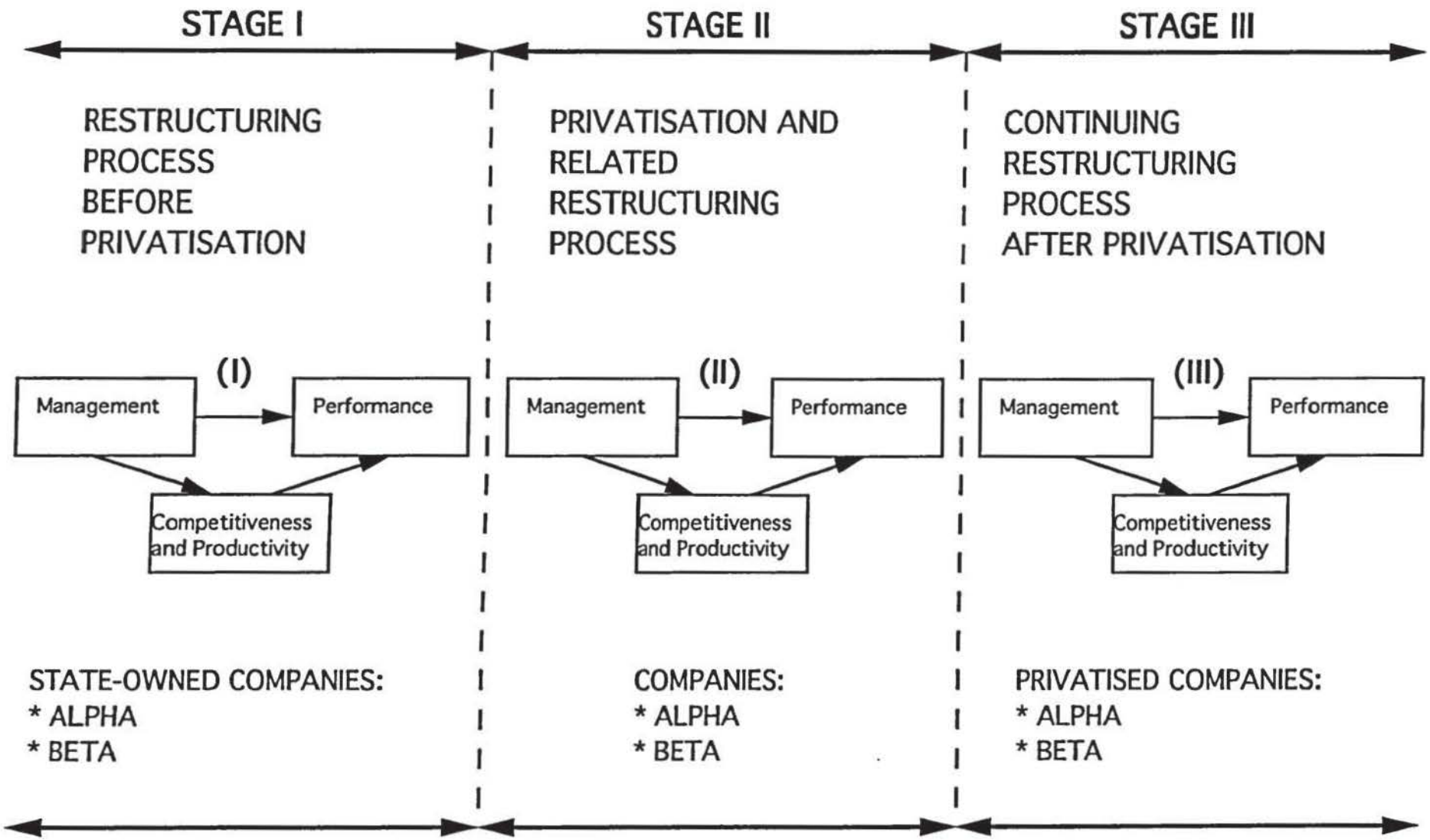
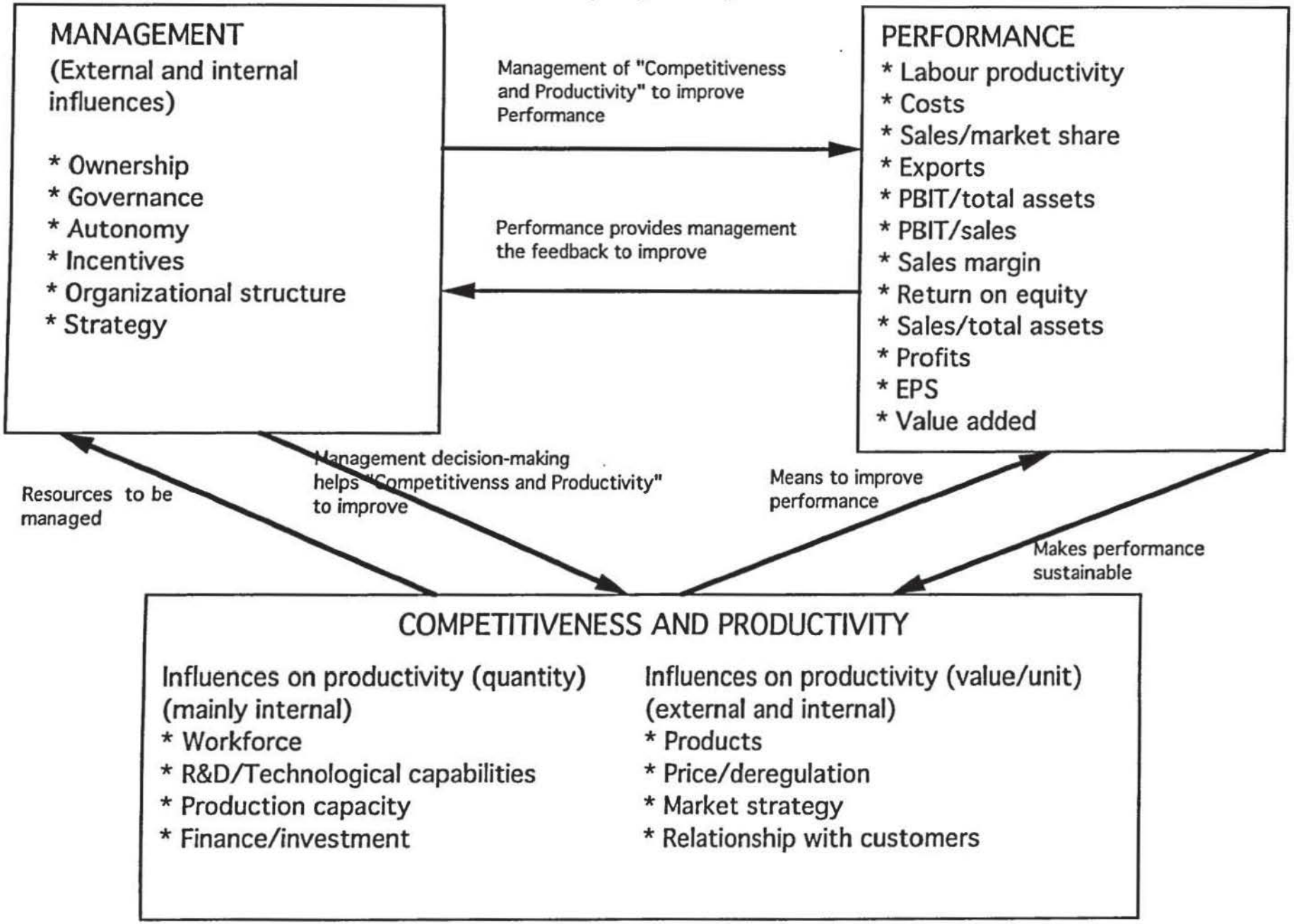


Figure 4.2. Company Analysis Framework



4.4. Research method adopted

In devising the appropriate methodology for examining the effects of privatisation on an enterprise, the researcher faces problems which are common to most other areas of research in business and the social sciences. From the available information, it is often difficult to separate the effects of some changes from those of others. For example, while the Brazilian steel enterprises were being privatised, they were also being influenced by changes in variables such as the Brazilian inflation rate, growth in the demand of steel, trade liberalisation policies and growth in the world demand for steel. Faced with such a complex situation, one approach would be to base the investigation entirely on a limited number of easily quantifiable variables (e.g. productivity, exports, sales). Another would be to focus on the qualitative aspects (e.g. governance, strategy). The alternative approaches clearly have very different implications for data requirements, the forms of analysis and the nature and validity of the results. The methodology used in this thesis is a blend of the quantitative and qualitative approaches. Before it is considered in more detail, it is useful to examine the pros and cons of the alternative approaches and their underlying philosophical foundations.

As Knights (1984) has stated, in general, quantitative methodologies (survey, statistical sampling, closed questionnaires, reports, records, files, etc.) aim to create generalisable statements concerning the object of the study through a representative survey and to validate it by standard statistical techniques. On the other hand, the approach of the qualitative methodologies (case study, open-ended questionnaires, formal interviews, participant-observation, etc.) seek more detailed understanding of processes, causes and effects and aim to examine what happens behind the public facade of an institution, organisation or activity.

The choice of the right approach to an investigation depends on the nature of knowledge being sought. According to Archer (1988), the three main epistemological standpoints are positivism, non-positivism and normativism. These are directly related to the basic premises on the nature of knowledge. *Positivism* embraces the idea that facts and value judgements can be and should be separated and

therefore the investigation of a certain reality can be carried out without being affected by a researcher's values. Positivism incorporates two main assumptions: (a) reality is external and objective, and (b) knowledge is based on the external reality (Smith, Thorpe, Lowe, 1992). *Non-positivism* accepts the idea that facts and values are intrinsically related and intertwined. *Normativism* is a more extreme view, where the fact-value distinction cannot be separate and value judgements are always involved in any process of research investigation.

The understanding of the nature of reality has implications for the nature of knowledge and its viewpoints. Archer states that there are three main theories of reality (ontology): external realism or traditional realism, internal realism, and subjective idealism. *External realism* states that reality exists independently of the observer. It matches the positivistic viewpoint when the latter distinguishes facts and values. *Subjective idealism* has the opposite view when it sees reality as something to be constructed by the subject according to his/her specific ambience. *Internal realism* regards reality as being a commonly shared value system therefore independent of a person's own reality. The knowledge and reality combinations are summarised in Table 2.2.

The various attitudes concerning research methodology, according to Archer, show a combination of theories of reality and theories of knowledge. Most of the time when researchers display quite different viewpoints, this is because they support a particular arrangement of epistemology and ontology positions. The two extreme combinations are *positivism/external realism* and *normativism/subjective idealism.* The former states that the object to be researched exists independently of the research community's beliefs and values. In other words it is independent of the observer, value-free, and reductionist. This approach stresses the benefit of potential generalisations of research findings as it is based on extensive statistical analyses of multiple observations. Nevertheless, it fails to realise the limitations (eg the richness of an in-depth analysis of the subject, the context and process).

Table 4.2 Theories of knowledge and reality matrix

Options	Theories of knowledge (Epistemology)	Theories of reality (Ontology)
I (extreme)	Positivism	External realism or Traditional realism
II	Positivism	Internal realism
III	Positivism	Subjective idealism
IV	Non-positivism	External realism
V	Non-positivism	Internal realism
VI	Non-positivism	Subjective idealism
VII	Normativism	External realism
VIII	Normativism	Internal realism
IX (extreme)	Normativism	Subjective idealism

Source: Adapted from S. Archer (1988) "Qualitative research and the epistemological problems of the management disciplines" in Pettigrew, A. M. (ed) Competitiveness and the management process. Basil Blackwell

The normativism/subjective idealism combination sets out that there is interdependence between researcher and the researched object and between fact and value. Reality is deemed to be a product of an individual researcher's observation and interpretation. As such, generalizations, value-free investigation, reductionism are not possible.

4.5. Case study method

The two extreme combinations outlined above do not fit in with the characteristics and realities of this research. Among the options displayed in Table 4.2, the non-positivist/internal realism

position, which states that facts and values are difficult to separate but not inseparable; is the most appropriate. Besides, reality is seen as a value system socially produced and commonly shared.

Vaidya (1993) asserts that a relevant amount of value judgement is presented when one is "(a) making a statement of the issues to be investigated, (b) defining the boundaries and the context of the investigation, and (c) designing the research methodology." The Company Analysis Framework introduced in section 4.3, makes a statement of the issues to be investigated and defines the boundaries and the context of the investigation.

The case study method was adopted in this research due to its strengths as a technique allowing an in-depth analysis of an event and the context within which it happens. Both qualitative and quantitative evidence have been used to develop an understanding of the effect of privatisation and related restructuring on the two enterprises. The situation being examined is complex with many changes taking place in the Brazilian economy, economic policies as well as the Brazilian and world steel markets and availability of quantitative data are limited. Under these circumstances a positivistic, external methodology attempting a rigorous quantitative test of possible cause and effect is neither possible nor desirable. It was thought to be more appropriate to combine quantitative data (e.g. changes in productivity, employment, profitability) with qualitative information (e.g. changes in company culture and strategy).

The context was unique as the companies being examined were going through a process almost totally new and unknown in Brazil. Government, state-owned companies, and the general public did not know the probable outcome of such a radical change of mentality, ownership and management involved in the privatisation of entire industries.

The approach adopted in this thesis fits in well with Yin (1989), who describes the case study as a contemporary event with its own context, where the boundaries between the occurrence and context are not very distinct, and multiple sources of information can be used. Hartley (1994) similarly defines case study research as

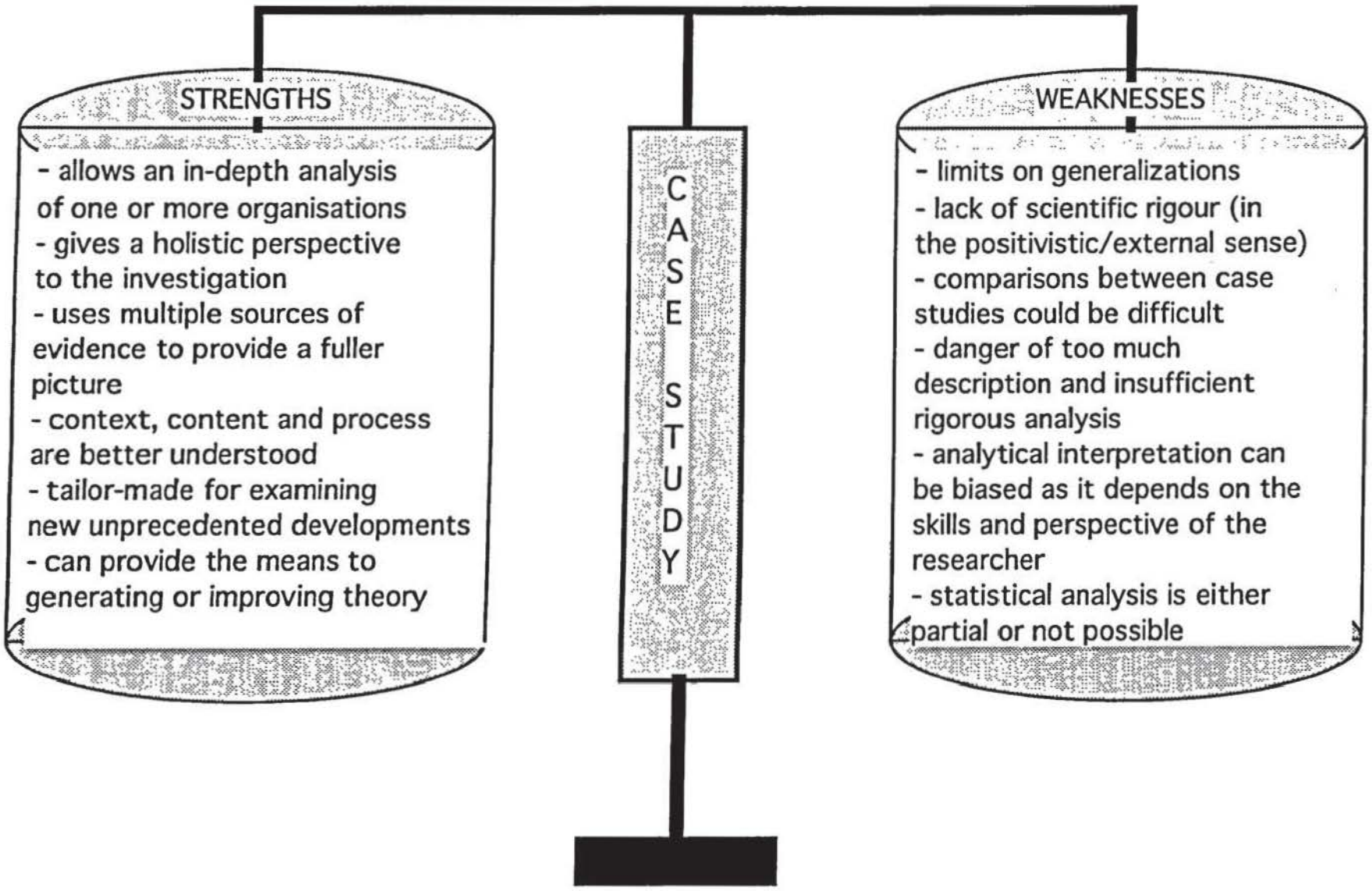
'a detailed investigation, often with data collected over a period of time, of one or more organizations, or groups within organizations, with a view to providing an analysis of the context and processes involved in the phenomenon under study. The phenomenon is not isolated from its context (as in say, laboratory research) but is of interest precisely because it is in relation to its context'.

The main criticisms of case study methodology are related to investigator's bias and difficulties of generalising results (Figure 4.3). Whatever the research strategy adopted by any researcher there will always be some bias influencing the findings. The investigator must remain aware of the possibility of such bias and attempt to reduce it by consulting a number of persons, some of them independent of the companies being investigated and by attempting to establish objective criteria for classifying and assessing the collected information. The second most common criticism of the case study methodology is to do with the validity of results. It is claimed that results from case studies cannot be readily generalised and applied elsewhere.

Apart from improving understanding of the issues under investigation, the broader combination to knowledge of the case study approach is the addition to the case study clinical knowledge which could be specifically applicable in some other cases or simply of value as a general guide for other investigations. Case studies also generate hypotheses which can be tested more rigorously by other methods.

Alpha and Beta were both restructured and privatised but are very different in terms of organizational culture, management, market niche, products exported, size, age of business, and so on. In these case studies, generalisations could be on the relative importance of privatisation and other factors on the performance and competitiveness of the companies. They would add to the case study clinical knowledge of all the privatisations that have been studied and identify specific issues (e.g. changes over longer periods of time) that should be studied.

Figure 4.3 CASE STUDY METHODOLOGY: STRENGTHS AND WEAKNESSES



4.6. The choice of industry and companies

The steel industry was the first Brazilian business sector to be entirely privatised by the end of 1993. It is an important basic industry in an industrialising country such as Brazil. The majority of the industry was state-owned and managed under SIDERBRAS, a state holding company. The industry is one of the main sources of hard currency for the Brazilian Government and has some major Brazilian companies by any criteria.

The three initially selected steel companies are located in the state of Minas Gerais, all with headquarters in Belo Horizonte and steelworks situated in neighbouring towns. The researcher chose the three companies as they match the main aspects mentioned before and because the researcher is located in Belo Horizonte and has contacts with many people in the steel industry. Knowing people from the industry can facilitate access and provide vital information, otherwise extremely difficult to get. Costs of travelling for the research were also minimized by choosing companies in Belo Horizonte.

At the end of the data collection one of the companies was eliminated due to lack of commitment to participated in the research on the part of the company and the anticipated difficulty in obtaining relevant data for this company as a result. The two remaining companies were impeccably professional in their dealings with the researcher throughout the collection of data. From the start, they appointed a representative who would be in permanent contact with the researcher and would help him to arrange interviews with mangers and others within the company and gather relevant data.

4.7. Data collection

The main data collection was held in Belo Horizonte (Minas Gerais state capital) and Ouro Branco over a period of three months. Later information was gathered through colleagues, from company literature and financial information.

Right from the beginning, after being contacted from England, one of the companies showed great interest in the subject and demonstrated this by sending a letter indicating willingness to

participate straightaway. The second company sent plenty of leaflets, booklets and balance sheets, but did not indicate great enthusiasm in further involvement. Back in Brazil, personal contacts were made to try to elucidate any doubts concerning the subject, data and interviews. At the end of the first month there, the second company agreed to participate in the research. The third company also sent a letter agreeing to the research being undertaken, as long as further contacts were made when in Belo Horizonte. The person designated to be the middleman had a great deal of interest in the research, but he left the company. Unfortunately, the new person selected to be the middleman did not show great interest and almost all the time was busy and unavailable. After two months trying to get access, finally a letter allowing the research to be carried out was received. Then, further difficulties came up since most of the information asked for was not available, given that it was considered confidential. That being so, it was decided to scrap this company from the bulk of the research.

In the two companies, sources of evidence utilized were direct observations (e.g. steel mill) , documentation (e.g. balance sheets), archival records and interviews (with open-ended questions). Written reports of events, articles from the mass media, newspapers, journals, were some of the additional documentation used. List of customers, suppliers, competitors, distribution of customers, range of products, number of employees over time, organizational charts, sources of funds, capital structure, dividend policy, were the main archival records consulted. Lastly, the other important source of evidence was in-depth interviews (Table 4.3).

4.6. Research questionnaire

The research questionnaire used in the in-depth interviews is made up of questions comprising four parts: summary information about the firm's history, products, employment, turnover and financial position; changes related to privatisation, competitiveness and general information on personnel.

The questionnaire is composed of 44 questions, 16 being related to general company information, 15 to privatisation issues, 10 to competitiveness issues and the last 3 to general data. Most of the

questions were open-ended, covering topics such as company history, ownership, distribution of customers and suppliers, main products, technology adopted, market, organisational structure, marketing strategies, circumstances of the privatisation process, company objectives before and after privatisation, competitiveness factors, impact of privatisation on competitiveness and so on. The questionnaire questions in English and Portuguese are set out in Appendix I.

Table 4.3 Methods used to gather information

Subjects of investigation	Primary method
• International competitiveness - definitions, level of analysis and measures, the government role, education and training, and so on.	* literature search, company documents
• Privatisation process - definitions and principles, objectives, benefits and disadvantages, ownership, natural monopolies, and so on	* literature search, company documents
• Iron and steel industry - World and Brazil	* literature search, company documents
• Case study companies - Alpha and Beta	* interviews, company documents including archival records, direct observation

4.9. Interviews

Twenty-nine people were interviewed by the researcher, thirteen being from Alpha, thirteen from Beta and only three from the third company which was eliminated from the research at the early stage as indicated above. The interviewees were superintendents, managers, advisors and engineers (see Table 4.4).

Those who had been chosen were informed beforehand so that they could prepare themselves for the interviews, make

arrangements for the meeting, gather informative material, and so on. A copy of the questionnaire was sent in advance so that the interviewee could think about the questions he/she would be faced with. During the interviews, most of the interviewees had minutes, memoranda, tables and other documents, that would enable them to answer the questions. The duration of the interviews varied between one hour and three hours, all depending on the relevance of the subject to the research and availability of the interviewee. Some of the interviewees were interviewed more than once. All interviews were conducted by the researcher, thus allowing a similar approach as well as an opportunity to explore the surroundings and observe aspects related to working conditions, facilities, tension between colleagues and superiors, and so forth.

Table 4.4 Sample hierarchical position breakdown

Hierarchical position	Companies			
	Alpha	Beta	Gamma	Total
* Superintendent	--	2	--	2
* Manager	6	4	1	11
* Advisor	4	4	1	9
* Engineer	3	3	1	7
* Total	13	13	3	29

Source: Interview data

4.10. Difficulties getting access to companies, people and data

Getting access to companies is not an easy task. There is no tradition of opening doors to researchers in Brazil. Just a few companies take seriously the importance and value that research has both for the company and for the community. Generally speaking, research and researchers are viewd with a certain suspicion. Some companies think that it is waste of time and money allowing researchers onto their premises, looking around, talking to their employees, and disrupting their working day.

To overcome those misconceptions and prejudices, usually a great deal of persuasion is required. Beforehand, the researcher made an appointment with a key person in the company to explain to her/him what the research was all about: reasons, justifications, objectives, and potential gains for the company. The researcher reminded the company of its social responsibility regarding sharing its experience with others so that a greater number of people could get access to information and experience which otherwise would be restricted to just a few people. However, doing that, the company could gain rewards, given that someone from outside could raise issues and see aspects concealed to the majority of employees. Besides that, at the end of the research a copy of it would be handed in to the company that had let the research be carried out.

To gain access to a company easier, personal contact with a person inside it is invaluable. Unfortunately, such access is not always possible and therefore "cold" contacts are necessary. These require going through formal channels, which are more time consuming and not always successful.

The researcher found that in the two case study companies, people were usually quite helpful and willing to cooperate after learning the content and purpose of the research and why they were chosen to be interviewed. At the very beginning, some employees were a little bit cautious, given that their companies had undertaken major reorganization programmes resulting in thousands of people being out of work. They did not want to be the next ones to be fired just because of things they said during an interview. The key issue throughout the data collection time was trust. People must trust you and believe that you are serious and intend to do something that will be worthwhile. Interviewees who feel proud when selected to be part of research, in general, are more responsive and willing to cooperate fully.

One the main difficulties during the data collection was to arrange a time when people could be interviewed. Most of interviews were carried out in the early morning or late afternoon, to suit the employees' interests and time availability. Given the level of demand upon employees, mainly after reorganisation and privatisation programmes, the number of tasks to be carried out by them had increased significantly, according to some. In general, most

interviewees were quite helpful and keen to give all the information they could on their subject. Just a few of them showed a certain lack of interest and motivation, by forgetting the appointments or arriving late. Usually, they did not give any explanation for their lapse.

Access to data was also a great issue and a source of difficulties. The researcher tried from the very beginning to convince companies that data gathered would be used strictly within the research objectives and would not be released for other purposes. So a great deal of trust had to exist to allow companies to let their employees supply the information demanded by the research. Again, most of the interviewees showed great trust in the researcher, revealing all the information they were asked for. Of course, there were a few cases when the interviewees were so intimidated and insecure that the simplest information was considered vital and confidential. The main reason for this behaviour could be explained by the sweeping effects that reorganisation had left upon the employees, primarily in one the companies where the workforce had been almost halved. The fear of being fired was so great that they hardly mentioned anything that could be used as a motive for their bosses to get rid of them.

4.11. Sorting out all the information gathered for analysis

From the beginning of the research one of the areas that caused much concern was collection and sorting of the gathered data. Throughout the collection of data the researcher, after every interview, tried to write down notes and comments on interesting remarks made by the interviewee as well as organize all the leaflets, booklets, written reports, articles from the mass media, archival records, and so on that were handed in by a specific company. Each one had its own box where all relevant information was kept.

The data collected should be arranged in a way that makes sense and can be found easily. Classification was made by company and notes, comments, copies of interviews, leaflets, and more filled according to different subject-matter such as company background, ownership, production, products, marketshare, technology, exports and imports, sales, productivity, workforce, and so forth.

Unfortunately, as almost always happens, not all the data needed for the research are obtained at once. There is not much problem when this takes place if the researcher is living near the source of data. Nevertheless, when the researcher is living some ten thousand kilometres away filling in gaps in the data is difficult. It was possible to fill in most of the gaps in the data even obtain updated information from the contacts established during the company visits.

5. BUSINESS ENVIRONMENT AND STEEL INDUSTRY CONTEXT

5.1. Introduction

The aim of this chapter is to give an overview of the Brazilian economic policies and the Brazilian and international steel industries. It provides the context for the examination of the two companies. This is necessary as during the period of examination the Brazilian steel industry and the case study companies have been influenced by a number of external forces as well as privatisation and the related restructuring. This is recognised in the framework and some of the external influences are explicitly examined in the case studies. An attempt has been made in analysing the companies to distinguish between the external influences and the effects of restructuring and privatisation. The chapter starts by presenting the Brazilian context, its main characteristics and peculiarities including some of the main economic changes that occurred over the last years in Brazil. Further, a section on the Brazilian steel industry sets out some of the main features of the industry. The International steel industry section portrays some of the main aspects of the industry worldwide which affect the Brazilian steel industry and enterprises.

5.2. Brazilian economic context

The years 1969 to 1973 are known as the "economic miracle" period when Brazil became one of the fastest growing economies in the world. Then came the years between 1974 and 1983, characterized by a fall in industrial growth and economic activity in general, coupled with the high inflation. The main external reason was the oil crisis but poor macroeconomic management, exchange rate and trade policies made the situation worse (Oliveira, 1989). The 1980s are known by some economists as the "lost years", when inflation rose sharply reaching almost 1800 per cent per year in 1989 and GDP decreased by -4.4 per cent in the following year, the worst macroeconomic performance in recent times. The policies known in Brazil as "neo-liberal" introduced since the late 1980s appear to have improved the macroeconomic situation and the performance of the industrial sector. At the macroeconomic level, these policies have

included tighter monetary and fiscal policies. In addition trade barriers have been lowered, price controls have been removed and government subsidies to industrial enterprises have either been completely removed or significantly reduced. The privatisation programme, which started with the sale of one of the companies studied in this thesis, is a consequence of the change in the policies.

Another important development for the Brazilian economy and industry has been the creation of the Latin American Common Market, Mercosul (It was established in 1991 by Brazil, Argentina, Paraguay and Uruguay). The long term aim of the member countries is to create a trading block which includes all South American countries with a market of 300 million consumers. The elimination of trade barriers within Mercosul. (Note: But in this respect, the Brazilian steel industry is well placed as it has the largest home market base in Latin America and is the longest established in the region).

In the 1990s the "REAL" stabilisation programme has kept inflation below 40 per cent per year while 40 per cent was the montly rate during some years. At the same time, GDP has been growing at about 5 per cent per year. Economic stabilization has played an important part in changing the attitudes and behaviour of individuals and businesses. Instead of taking a short-term approach to survive in the face of economic uncertainty (in the case of many companies through the use of instruments in the financial markets), many companies have started to take a long term view and expand productive capacity. Consumers have also increased their spending as a result of rising incomes and less uncertainty.

Brazil has an area of 8,547,403.5 square kilometres; it is the world's fifth largest country, after Russia, Canada, United States and China. It is located in South America, being 47% of the continental area. The national language is Portuguese. Brazil is the world's fifth most populated country, having a population of 160 million inhabitants. Life expectancy is 66 years, adult illiteracy is 20 percent and infant mortality is 66 per 1000 live births (Financial Times/Brazil Survey 6 June 1996). Some of the key economic indicators are shown below (see Table 5.1).

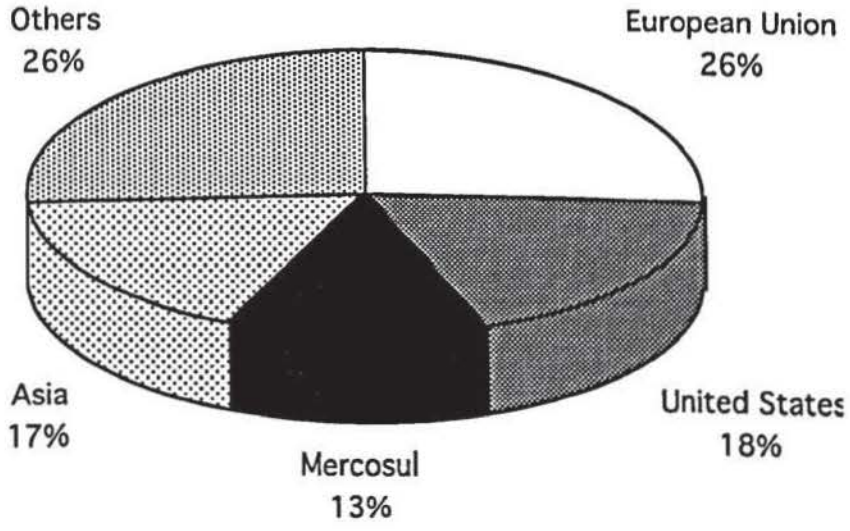
The main trading partners are the European Union, the United States, Mercosul and Asia. They constitute 77 percent of all exports and imports. Figures 5.1 and 5.2 display the main figures.

Table 5.1 Brazilian economy key indicators

Indicators	1994	1995
* Total GDP ($bn)	624.2	644
* Real GDP growth (%)	5.7	4.2
* Annual inflation	912	18.8
* Income share of poorest 50% (%)	10.4	11.6
* Tax burden as share of GDP(%)	28.3	30.1
* Exports ($bn)	39.8	42.6
* Imports ($bn)	28.6	45.7
* Trade balance	+11.3	-3.1
* International reserves (year end in $bn)	36.5	50.5

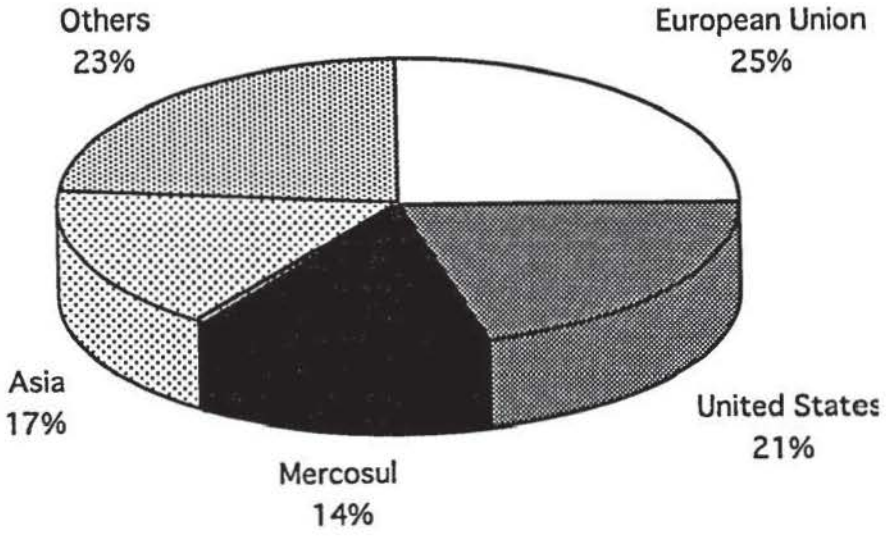
Source: Financial Times/Brazil Survey 6 June 1996:ii

Figure 5.1 Brazilian exports breakdown



Source: Financial Times/Brazil Survey 6 June 1996

Figure 5.2 Brazilian imports breakdown



Source: Financial Times/Brazil Survey 6 June 1996

Since the 1960s, Brazil has had pursued an import substitution policy under which it sought to develop a number of major industries within a protected domestic market. In the late 1980s, the government realized that protection alone is not enough to develop efficient and competitive industries. The consequences of tight protection in many industries were disastrous since companies became relaxed regarding the quality of their products and started to charge domestic customers high prices as there were few foreign products to compare or to buy. 'Brazil's private sector will remember the 1990s as a time of strenuous and often painful readjustment' (Financial Times/Brazil Survey 6 June 1996:iv).

The reduction of import tariffs, creation of the Mercosul market, privatisation of entire industries, and the reduction of inflation from four to two digits a year, put an end to easy profits derived from financial speculation. Companies had to improve their productivity and quality of their products to become competitive and improve their financial performance. Trade liberalization has faced Brazilian manufacturing companies with increased competition from foreign products which in many cases are much cheaper and of better quality. The effects of this policy have been stormy. The number of

complaints by those industries affected (eg, textiles, footwear) is enormous. In spite of that, the government seems to be inclined to carry on with this policy. The government's view the liberal trade policy will bring some casualties, but domestic firms will have to become more competitive.

According to MA Economic Consultants, the Brazilian industrial sector has been under great pressure over the last three years (1992-1995). In a study of 16 industrial sectors, figures show that industrial production has increased by 12%, productivity by 33% on average, meanwhile, the workforce has been reduced by 15%. However, in spite of the productivity growth, the prices of industrial goods increased by 45% since 1992. The best performers were transport, electrical, telecommunications products, automobile industries, which grew by around 36%. The worst performers were textiles and footwear industries, where production levels decreased by 7.1% and 6.5%, respectively. The steel industry net profit over sales increased 8.8 per cent in 1995 (Exame magazine, 22 May 1996:60).

As shown above, the Brazilian economy has been undergoing countless changes since the outset of the 90's decade. To give a much broader picture of what has happened over the last 10 years, a group of charts are displayed. The objective is to help the reader to better understand the Brazilian economy context within which this research was carried out. Figure 5.3 displays the inflation rates and their development since 1986. It shows that the Brazilian economy has been quite unstable over the last years, according to the chart. It was a period of great financial speculation and low investment in production.

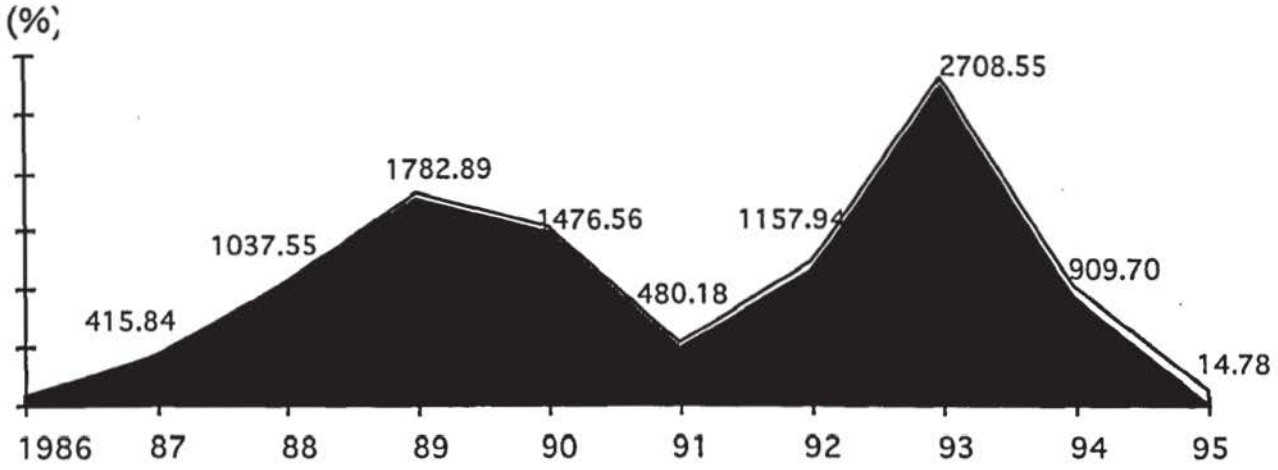
Figures 5.4 and 5.5 display the GDP and GDP per capita. Over the last years, the economic instability, high inflation, government maladministration, high public indebtedness, lack of investment, all these aspects took their toll on GDP growth. After a period of decline from 1989, the GDP per capita began to grow in 1993 onwards, reaching US$3545.00 by 1994. Manufacturing production of selected goods has been improving over the last five years, despite some setbacks, as shown by Figures 5.8, 5.10 and 5.11. As the economy gets better and stable, car production presents clear signs of recovery. In 1995, it attained 1543.3 thousand units. It expects to exceed the 2 million level by the year 2000 (Financial Times, 13 May

1996:30) with will be possible by probable expected of a number of foreign car producers including Hyundai, Mercedes-Benz, Asia Motors, Honda, Mitsubishi, Peugeot, Renault and Audi. The foreign car makers are planning to invest US$10.6 billion in Brazil by the end of the decade (Financial Times, 5 March 1996:iv).

The purchasing power of the population has increased since 1993 with GDP growth averaging 4.7 per cent in the years 1993 to 1995 (see Figure 5.4). The 1994 Economic Stabilisation Programme has also brought down inflation from more than 2700 per cent in 1993 to 15 per cent in 1995 (Figure 5.3). Both these developments have contributed to steady growth in the demand for cars and household appliances such as television sets, refrigerators, video players, microwaves, dish washers and cookers (as shown by Figures 5.8 and 5.10). As cars and some household appliances are steel intensive products, growth in these sectors would be expected to increase domestic consumption of steel.

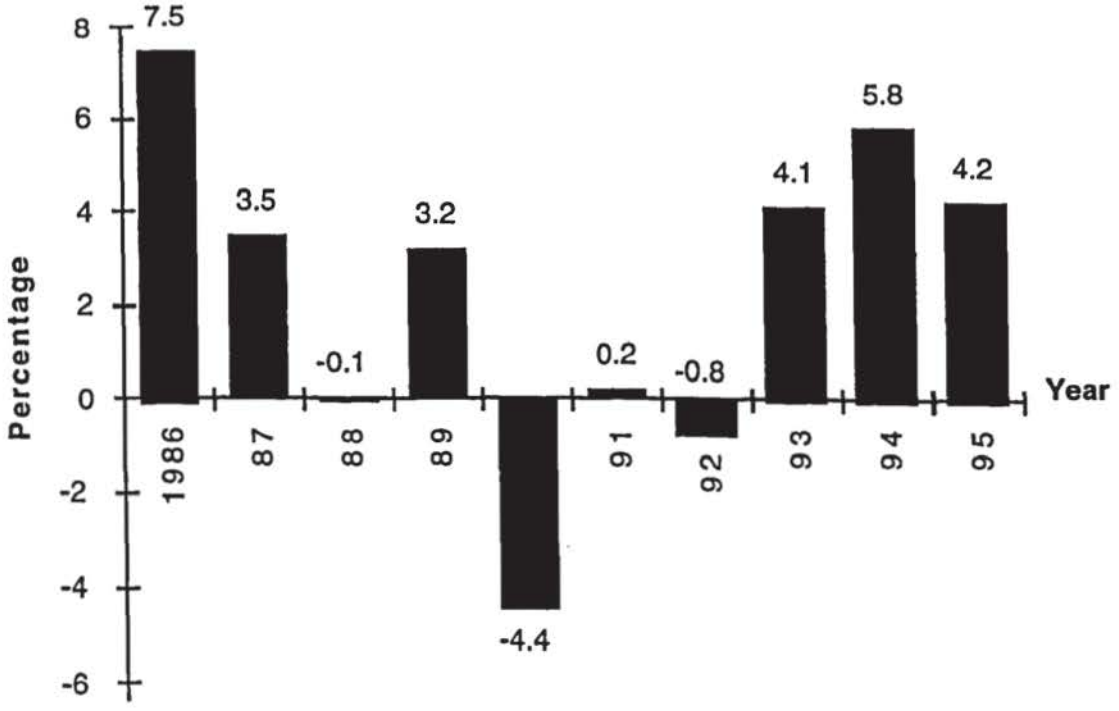
Figure 5.6 sets out the Brazilian exports breakdown. The bulk of exports is made of manufactured goods, while raw materials stand for less than 25.0%. Cars and transport goods represent 9.0% of all exports. Figure 5.7 shows the Brazilian imports breakdown. The bulk of imports is constituted by raw material and semi-finished products (45.3%). Capital goods and consumer goods stand for over 40% of the total. Fuel and lubricants represent approximately 10.0%. Figure 5.12 displays the share of three sectors of the economy. Over the last ten years (1985-1995), services (46.6% - 50.0%) and agriculture (11.1% - 13.0%) have seen their share increased. On the other hand, manufacturing reduced its share from 42.3% in 1985 to 37.0% in 1995 (Brazil em Exame Magazine June/1996:15).

Figure 5.3 Brazilian inflation (%)



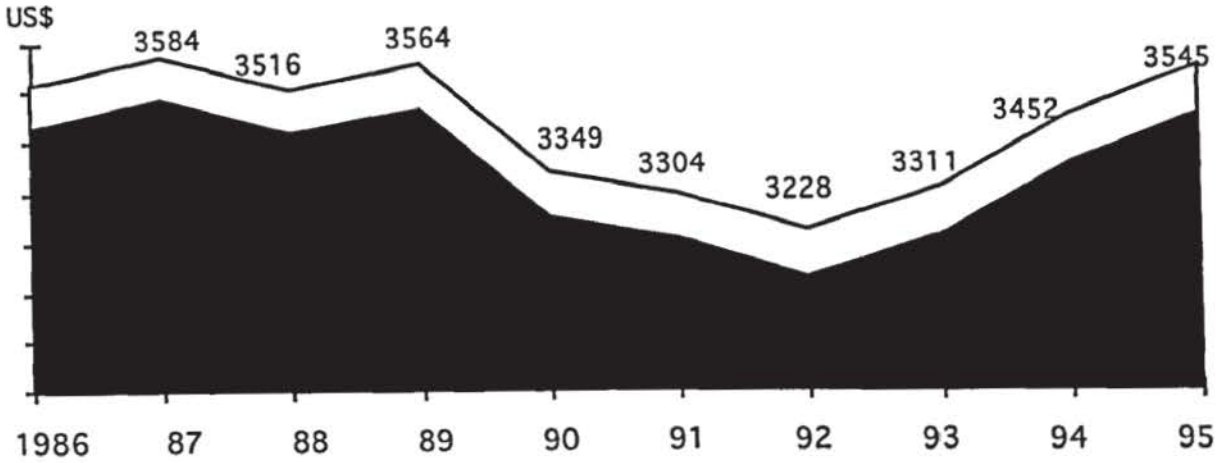
Source: Exame Magazine, June/1996, FGV, IGP-DI

Figure 5.4 Brazilian GDP



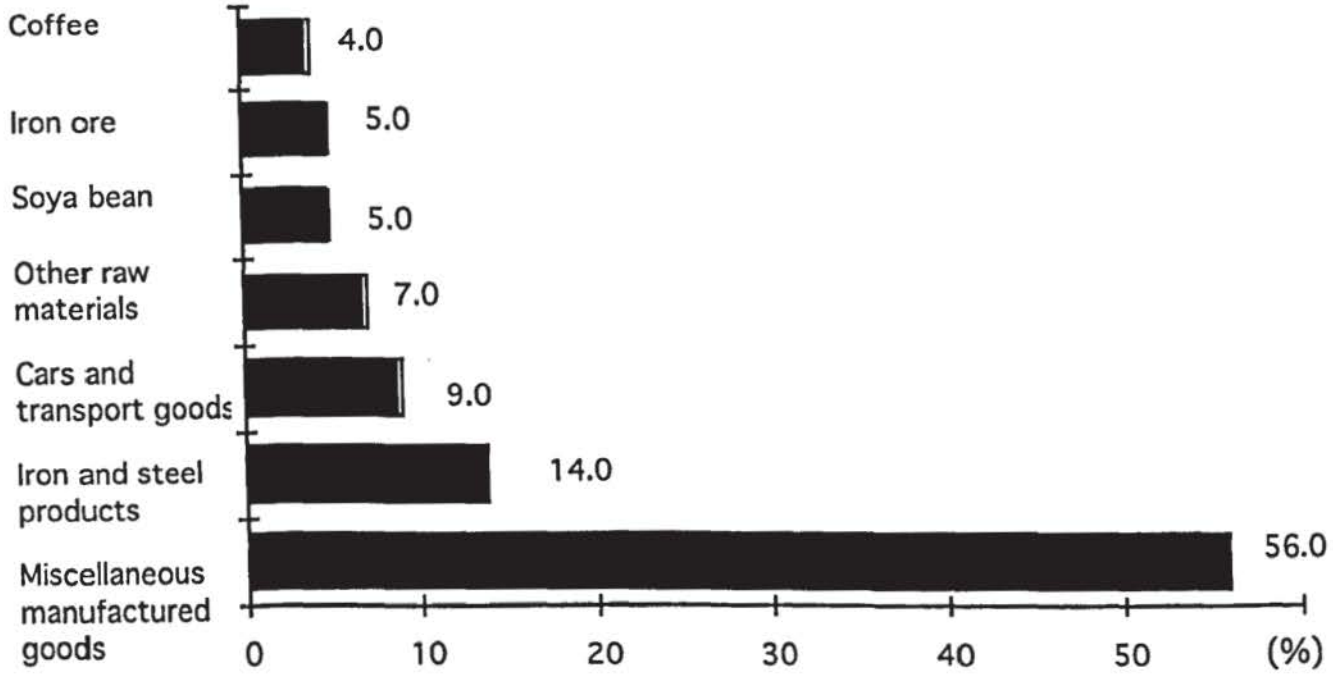
Source: Exame Magazine, June/1996

Figure 5.5 GDP per capita - in US dollar of 1994



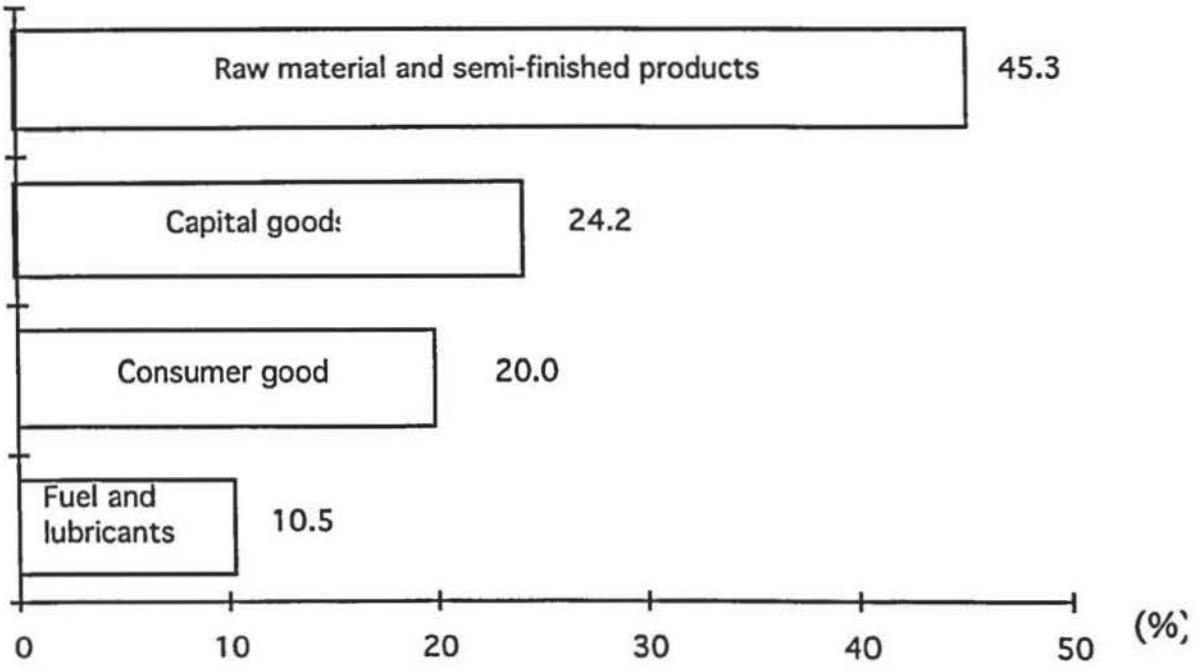
Source: Exame Magazine, June/1996

Exhibit 5.6 Brazilian exports by product (%)



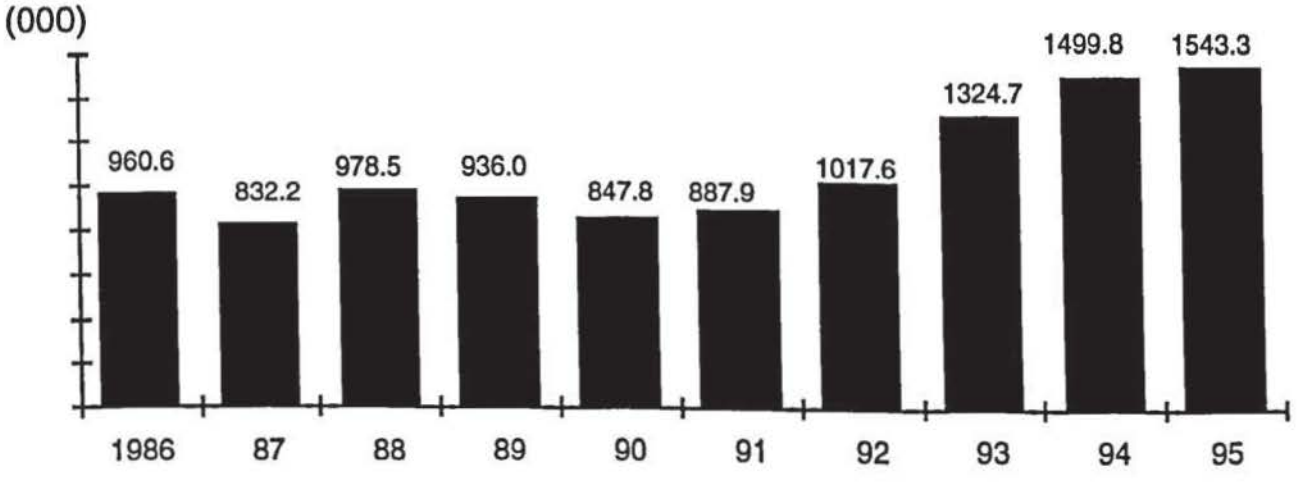
Source: Exame Magazine, June/1996

Exhibit 5.7 Brazilian imports by product (%)



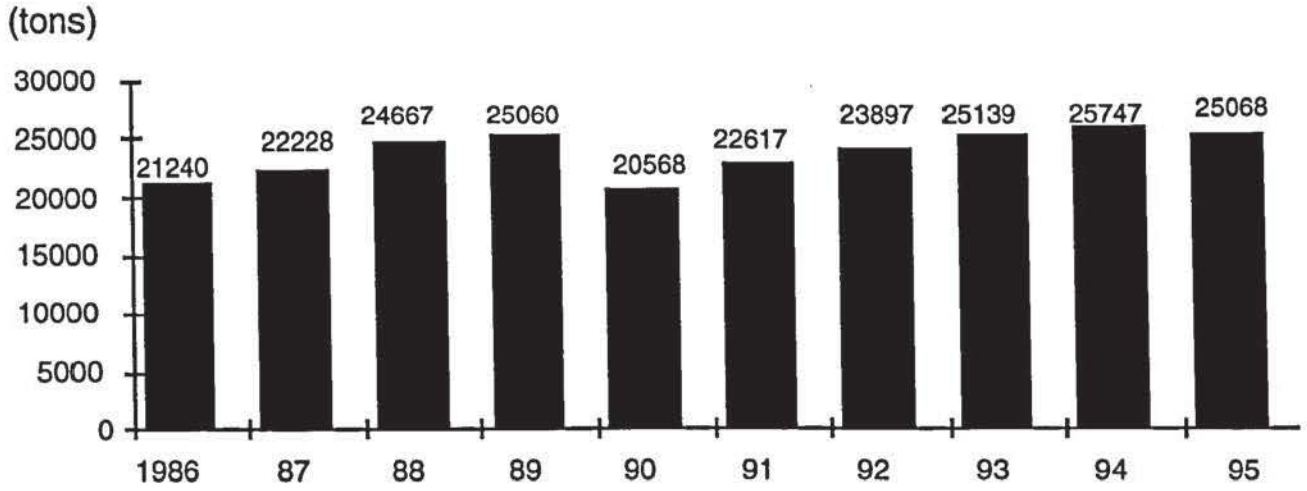
Source: Exame Magazine, June/1996

Exhibit 5.8 Brazil's output of cars and light trucks



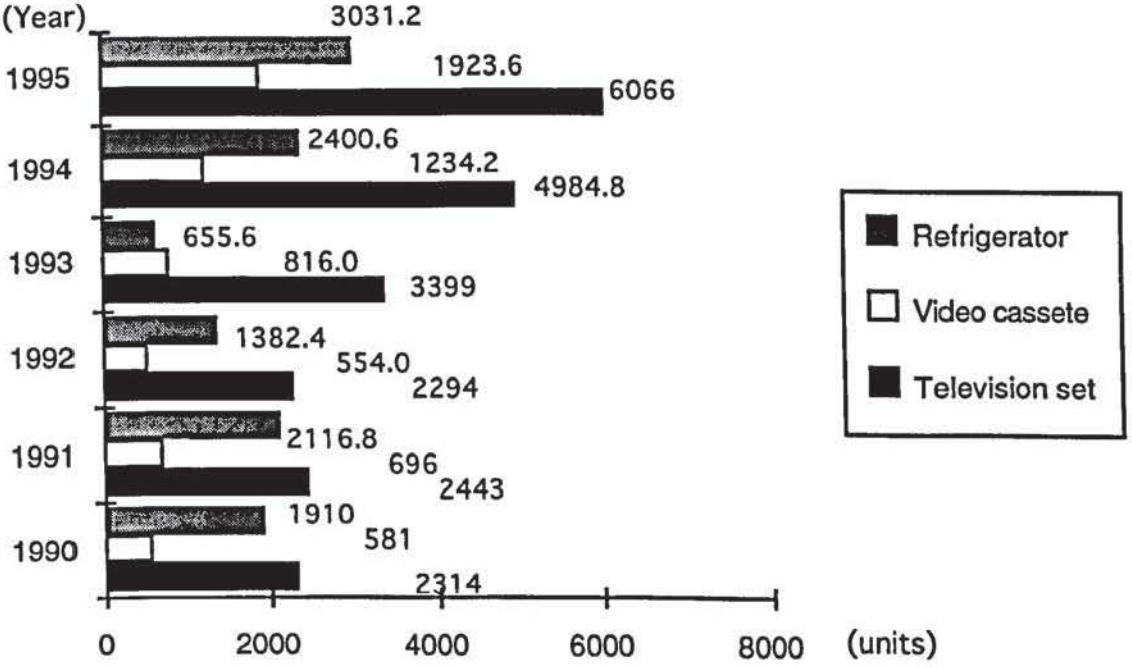
Source: Exame Magazine, June/1996

Exhibit 5.9 Brazilian crude steel production (000t)



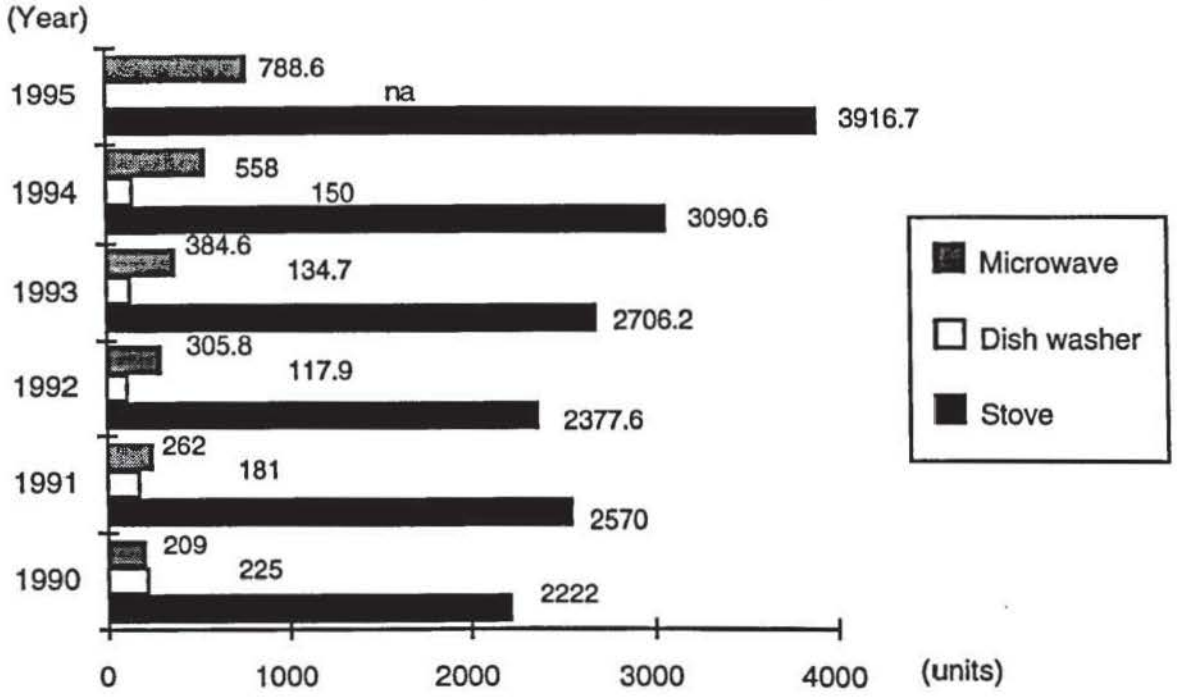
Source: Exame Magazine, June/1996

Exhibit 5.10 Household appliance sales (000s)



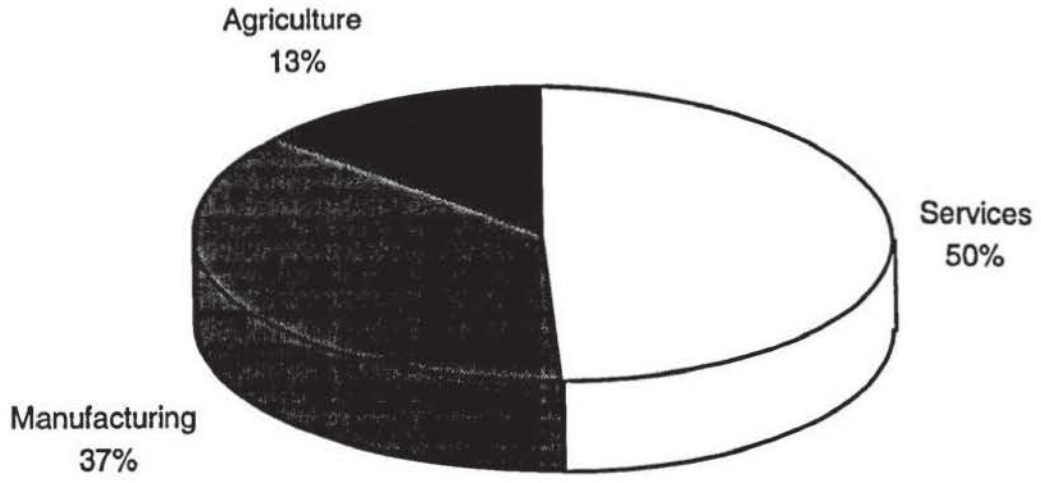
Source: Exame Magazine, June/1996

Exhibit 5.11 Household appliance sales (000s)



Source: Exame Magazine, June/1996

Figure 5.12 Economy sectors breakdown



Source: Exame Magazine, June/1996
* Approximate figures

5.3. The National steel industry context

The Brazilian steel industry was initially set up in the 1940s, when the Government created the Companhia Siderurgica Nacional (CSN). At that time, the Brazilian economy based on farming, mining and other primary activities. An important objective of the Government was to initiate a programme of industrialization. In establishing the steel industry, an important aim was to reduce the dependence on imported steel as the war could jeopardize the delivery. A deal was struck between the Brazilian and American Governments according to which the Brazilian Government would be helped by the American Government to build up its first steelmill plant as long as the Brazil took the side of the Allies in World War II. Brazilian soldiers were sent to Europe to fight for the Allies and in exchange the Brazilian Government had its first steel mill. After the war, other state-owned steel mills (for example, Usiminas, Cosipa, Acesita, Acominas) were established and stayed in public hands until the privatisation programme in the 1990s.

The Brazilian steel industry is made up of 27 companies located in 11 states. Its annual production capacity was 28.5m tonnes of crude steel in 1995. In 1994, steel output reached a total of 25.8m tonnes, and Brazil became the eighth biggest steel producing country in the world, according to the Instituto Brasileiro de Siderurgia (IBS). Domestic consumption of steel products reached 12.8 million tonnes in 1994, an increase of 15 per cent over the previous year. Iron and steel products accounted for 14.0 per cent of the Brazilian exports in 1995 and earned almost US$6.0 billion of hard currency for the country.

Exports in 1994 reached 11.08m tonnes of steel, accounting for 48 percent of output, down from 12.24m tonnes in 1993. By1994, exports generated US$3.2 billion in revenue. As a whole the sector's turnover was US$12 billion. In January 1995, steel exports fell to 625,900 tonnes, nearly 32.3 percent less than the same month in 1994. Exports in January 1995 totalled US$201m. An explanation of the fall in Brazilian steel exports is the increase in local demand from sectors such as carmakers, auto-parts, steel welded tubes, industrial equipment and packaging. In addition there are other reasons such as the stronger Brazilian currency, high taxes and transport costs which

have made the Brazilian steel relatively uncompetitive in international markets.

The steel companies are planning to invest US$7.0 billion between 1994 and 2000 to raise annual production capacity to 32m tonnes from a current capacity of 28.5m tonnes, according to IBS. In 1995, the total investment expected would reach US$1.3 billion mainly in training and environmental protection. In 1994, the industry invested US$700m , up from US$340m in 1993.

Productivity has been steadily increasing over the last years. This is mainly due to the reduction of manpower, hardware improvement, reorganization and rationalization within companies. The Brazilian steelworker produced 186.5 tonnes in 1991, but in 1994, production reached an average of 260 tonnes per worker. In terms of man/hour/ton it is expected that productivity levels will attain values between five and six, by 1997/98.

Brazilian crude steel consumption per capita which was 120 kg in 1981, dropped to 65 kg due to the deep recession that hit the country's economy during the 80's and at the beginning of the 90's. However, in 1995, the forecast is that the per capita consumption will reach 100 kg/inhab.

Finally, there seems to have been the beginning of a new cycle of development happening in the Brazilian economy from 1993 onwards. The steel industry is very much part of this ongoing process with its 98 thousand employees and a turnover of US$12 billion in 1994. There is a renewed confidence in the sector after the privatisation period (1991-1993) which brought about great changes in terms of reorganization and mentality. According to experts in the steel sector, after privatisation companies are more prepared, both qualitatively and quantitatively, to fight their way through the international arena, where competition is fierce. The Brazilian steelmills are going through a period of optimism and facing a scenario of growth and development, investing in improvement of quality and productivity as well as modernising their management.

Crude steel production

Brazilian crude steel production increased steadily from 1983 until 1990. From a total production of 14.7 million tonnes in 1983,

reaching 25.1 million tonnes at the end of the 1980s. By 1983, Brazil accounted for 2.2 percent of world crude steel production of 663.4m tonnes, reaching 3.2 percent by 1988. Unfortunately, due to recession and other economic problems production dropped by about 20 percent in 1990, in comparison with 1989.

Meanwhile, the world steel production fell by just less than 5 per cent in 1992. Recently, Brazilian production has started to increase again, mainly because of improvement in the economy (increased demand from the car industry, for example) and exports to Asia and Mercosul (especially to Argentina). In 1992, production reached 23.9m tonnes, 3.3 percent of world production of 722.7m tonnes (see Table 5.2).

Table 5.2 Brazilian crude steel production (000t)

Year	World (A)	Brazil (B)	B/A (%)
1983	663,398	14,671	2.2
1984	710,137	18,386	2.6
1985	718,941	20,456	2.8
1986	713,587	21,233	3.0
1987	736,530	22,228	3.0
1988	780,178	24,657	3.2
1989	785,838	25,055	3.2
1990	770,220	20,600	2.7
1991	737,075	22,617	3.1
1992	722,663	23,898	3.3

Source: IISI 1993, IBS 1993

Table 5.3 shows the Brazilian crude steel production in relation to that in Latin America. Brazil is by far the biggest producer in the region. From 1983 to 1992 it increased its share by almost 8 per cent. In 1983 Latin American production reached 29.1 million tonnes as Brazilian production achieved 14.7 million tonnes, 50.4 per cent of the total. In 1987, the Latin American production reached a level above 40 million tonnes of which Brazil' proportion was 55.4 per cent. Considering a period of 10 years (1983-1992), 1989 was the

year when the total production attained its maximum result. More than 42.7m tonnes were produced in that year, Brazilian production representing 58.6 percent of the total. The year of 1990 shows the worst figures for the period in consideration. Production dropped to 38.5m tonnes, 10 percent fewer than the previous year. This reduction happened mainly due to a decrease in production in Brazil.

Table 5.3 Brazil's crude steel production relative position in Latin America (000t)

Year	Latin America (A)	Brazil (B)	B/A (%)
1983	29,105	14,671	50.4
1984	33,579	18,386	54.8
1985	36,200	20,456	56.5
1986	37,848	21,233	56.1
1987	40,101	22,228	55.4
1988	42,710	24,657	57.7
1989	42,759	25,055	58.6
1990	38,511	20,600	53.5
1991	39,549	22,617	57.2
1992	41,368	23,898	57.8

Source: IISI 1983, IBS 1993

In spite of that, the Brazilian share continued to be more than 50 percent, smaller, however, than in 1989. In 1992, recovery was underway with steel production reaching 41.4m tonnes in the whole region. Brazilian production was 23.9m tonnes, 57.8 percent of the total.

Table 5.4 sets out the regional distribution of crude steel production in Brazil. The Brazilian South Eastern accountS for 94.5 per cent of the total production. In second place, far below the first in production, comes the Southern region with 2.8 per cent of production. The North East stood for 2.6 per cent and the North represented 0.1 percent. The state of Minas Gerais in the South East produced more than 10m tonnes in 1993, accounting for 39.9 per cent of the total Brazilian production. It is the home of most of the

major Brazilian steelworks (Usiminas, Acominas, Acesita) and it is currently the biggest iron ore producer. Rio de Janeiro was the second in terms of production, representing 23.3 percent of the total. The biggest Brazilian steelproducer, CSN, is based in Rio de Janeiro. Sao Paulo and Espirito Santo were the third and fourth states in steel production, respectively, in 1993. Rio Grande do Sul is the biggest steel producer in the South, and Bahia in the Northeast region. In the North region, Para is the only producer. However, due to a huge iron ore reserve in the Amazon region, its potential to become a bigger producer should not be underestimated.

Table 5.4 Regional distribution of crude steel production (1993)

Region	State	Tonnage (000)	Share (%)
	- Minas Gerais	10.055	39.9
* Southeast	- Rio de Janeiro	5.867	23.3
(94.5%)	- Sao Paulo	4.106	16.3
	_ Espirito Santo	3.792	15.0
* South	- Rio Grande do Sul	450	1.8
(2.8%)	- Parana	266	1.0
	- Bahia	378	1.5
* Northeast	- Pernambuco	171	0.7
(2.6%)	- Ceara	62	0.2
	- Alagoas	43	0.2
* North	- Para	17	0.1
(0.1%)			
* Total		25.207	100.0

Source: IBS

Brazilian steel products range from commodities (slabs, ingots, blooms and billets) to more value-added ones such as galvanized plates and stainless steel.

Slabs are made by five companies: Companhia Siderurgica Tubarao (CST), Acominas, Usiminas, Companhia Siderurgica Nacional (CSN) and Cosipa. CST is by far the largest slabs producer, accounting for around 75 percent of slabs available for sale in 1993.

In 1989 CST had produced 2.9m tonnes of semi-finished products for sale, corresponding to 45.0 percent of output, 2.7m tonnes being slabs. Four years later its semi-finished product market share rose to 47.4 per cent. In 1990, CST saw its market share come down to 36.4 percent mainly due to a recession in the Brazilian economy and reduced demand and low prices abroad. The other two main producers of slabs are Acominas and Usiminas, representing 22.2 percent of the total slabs output in 1993.

Blooms and billets are produced by about 20 steel producers, Acominas being the most important. In 1989 its production had reached 1.4m tonnes, more than half of the bloom and billet output. Its market share has been growing since then. In 1993 it managed 73.6 percent of the total. The other main producers at that time were Vibasa, Guaira and Cosigua. Blooms and billets are considered commodities, as such they do not get good international prices, when compared with, for example, cold rolled coils and galvanized plates. For that reason, some producers are considering upgrading their mix of products, since the lion's share goes to the end-producer.

Domestic sales

The Brazilian steel industry has been able to produce and market a wide variety of steel products ranging from semi-finished, long and flat products. They are designed to serve different uses and users. Flat products are plates and coiled plates, hot-rolled sheets and coils, cold-rolled sheets and coils, coated sheets, special steel sheets. Uses of heavy plates are concentrated in civil construction, industrial equipment and autoparts. Hot-rolled sheets and coils have their main users in civil engineering, agricultural equipment, and welded tubes. On the other hand, cold-rolled sheets have their principal customers in autoparts, automobiles and household appliances.

Table 5.5 shows the Brazilian steel market sales by type of product. By 1993, sales of flat products reached 5.9m tonnes, up from 4.8m tonnes in 1990, when the Brazilian economy was in recession. Cold-rolled sheets accounted for 34.1 per cent, down from 35.2 per

cent in 1990; hot-rolled sheets 29.8 per cent, up from 24.1 per cent in 1990; plates 17.0 per cent of domestic sales, down from 21.6 per cent in 1990 and so on. The volume of sales reached more than 3.0 million tonnes by 1993, better than the 1990 figures, however worse than 1989, when total sales came to 3.6m tonnes. As a whole, total rolled products sales reached 8.9m tonnes in 1993, up 17.4 percent from 1990.

Semi-finished products domestic sales decreased over the period from 1988 until 1993. The main reasons are economic recession and bigger volume of exports. In 1993, a total of 1.2m tonnes of semi-finished were sold, blooms and billets accounting for 91.5 percent, up from 72.7 percent in 1990; slabs stood for 8.4 percent, down from 26.3 percent in 1990; and ingots represented 0.1 percent in 1993, down from 1.0 percent in 1990.

Table 5.5 Domestic steel sales by product (000t)

Products	1988	1989	1990	1991	1992	1993
* Flat products						
- plate	1.496	1.537	1.036	975	978	1.005
- hot-holled sheet	1.713	1.943	1.155	1.476	1.348	1.764
- cold-holled sheet	2.260	2.305	1.686	1.574	1.597	2.016
- coated sheet	786	905	735	900	819	907
- special sheet	214	292	184	211	195	222
- total	6.469	6.982	4.796	5.136	4.937	5.914
* Long products	3.278	3.576	2.801	2.589	2.195	3.003
* Total rolled products	9.747	10.558	7.597	7.725	7.132	8.917
* Semi-finished products						
- ingots	24	17	11	8	9	2
- slabs	401	155	315	406	246	100
- blooms and billets	1.047	1.047	870	886	988	1.091
- total	1.472	1.219	1.196	1.300	1.243	1.193

Source: Instituto Brasileiro de Siderurgia (1994)

5.4. The International steel industry context

The international steel industry has not escaped the globalisation of economic activities and increased international competition. Ease of communication, better transport systems, greater freedom of international capital flows and technology and a growing skilled labour force are some of the factors that have contributed to the increase in international integration and competitive rivalry in many major industries.

According to the ILO (International Labour Organisation) (1992), the recent developments in the international steel industry show clear differences between types of economies. According to Dicken (1990), steel demand in the industrialised economies of Europe and the United States have been hit by three factors. First, as these economies are becoming more and more 'service oriented', economic growth is becoming less steel intensive and therefore the consumption of steel is stabilizing or declining. The second reason for the reduction of steel demand is related to increasing imports of ships, automobiles and othermanufactured goods with high steel contents. Third reason is that steel users are reducing the amount of steel needed to produce the same goods as before, mainly due to design and technological changes or, in some cases, the substitution of steel by other materials.

During the 1980s, the performance of the Eastern European economies deteriorated. The demand for steel in this region fell, there were inadequate resources and also a lack of incentives to improve performance under the central planning systems. The steel industry therefore became progressively outdated in its manufacturing, management and performance.

The strongest growth in production and consumption of steel are in the newly industrialised and industrialising countries. Many of them are in South East Asia. The "Asian Tigers" (Korea, Taiwan, Hong-Kong and Singapore) are now generally recognised as industrialised but there are a number of other countries in the region (e.g. Malaysia, Thailand, Indonesia and mainland China) which have a rapidly growing industrial base. While policies and circumstances in Brazil are different from those in the South East Asian countries, it is a middle income industrialising country with a large steel industry.

Over the next few years, the greatest growths on steel production and consumption are expected to be in these and similar economies which are referred to as industrialising countries in the following discussion.

Technological changes in the iron and steel industry have affected most stages of production. The main changes are computerisation of production, increasing use of continuous casting processes, energy conservation and environmental protection. These changes have had a great impact on the number of steelworkers which has declined in most nations. The main reasons according to ILO (1992) are modernisation, restructuring and the related productivity improvements. Technological innovations have been responsible for the decrease in unskilled jobs and increase in some skilled ones. Privatisation and restructuring have also increased the pace of theses changes.

Crude steel production

Table 5.6 shows the world steel production since the end of the Second World War. The growth in steel production continued until 1974, when a production of 703.5m tonnes was attained. This long phase was interrupted by the first oil crisis, which caused a drop in production of 60.0m tonnes in 1975, primarily in the industrialised countries (International Labour Organisation, 1992). The recession of the 1970s brought about a new scenario. Instability and fluctuations became characteristics of the whole industry. In 1987, the industry began a recovery, when the steel production reached 736.5m tonnes. That level of production represented an increase of 651.2 percent in comparison with 1945 and just 4.7 percent in relation to 1974. It lasted until the first half of 1990. From 1990 until 1992, the world steel production again entered another period of lower production and demand. In 1992, steel production achieved 722.7m tonnes, down 8.0 percent from 1989. The main consumers of steel are capital goods, the car industry, construction and consumer durables.

Growth rates in production and consumption also differ significantly between countries at different levels of development. Steel production in industrialised countries fell more than 6.0 per cent in absolute terms between 1980 and 1990, while industrialising countries increased their share by 5.0 per cent over the same period.

Former USSR and East European countries had their output decreased by 2.5 percent.

Table 5.7 sets out the trends in world crude steel production by region between 1983 and 1992. The major trends over this period have been the fast growth of steel production in Asia, cyclical changes in steel production in the industrialised countries of the European Union and North America and relative growth in Latin America. In 1983, world steel output reached 663,398 thousand tonnes, Asia accounting for 26.1 percent, the European Union standing for 18.6 per cent, North America 13.5 per cent, Latin America 4.4 per cent, and rest of the world 37.4 per cent. In 1987, when the recovery happened, production achieved 736,530 thousand tonnes of steel, up 11 per cent from 1983. Asia stood for 27.5 per cent of world production, the European Union produced 17.2 per cent, North America accounted for 13.0 per cent and the Latin American output was 5.4 per cent.

Table 5.6 World crude steel production (million tonnes)

Year	Total	Cumalative Growth (%)
1945	113.1	100.0
1950	189.8	167.8
1955	270.5	239.2
1960	347.1	306.9
1965	452.4	400.0
1970	595.3	526.3
1975	643.5	569.0
1980	716.3	633.3
1985	718.9	635.6
1986	713.6	630.9
1987	736.5	651.2
1988	780.2	689.8
1989	785.8	694.8
1990	770.2	681.0
1991	737.1	651.7
1992	722.7	639.0

Source: International Iron and Steel Institute (IISI) 1993

Five years later, in 1992, total output had attained 722,663 thousand tonnes of steel. Asia production reached 250,897 thousand

tonnes, 31.1 percent higher than in 1983, due to its overwhelming economic success and staggering growth. The European Union produced 132,356 thousand tonnes, an increase of 7.4 percent in comparison with 1983, although far less than the growth rate of Asia. North America produced 98,162 thousand tonnes of steel, an augmentation of 9.6 percent to that of 1983. Finally, Latin America, in 1992, produced 41,368 thousand tonnes of steel, 42.1 percent higher than in 1983. Clearly, developed economies have not been able to follow the growing rates shown by developing countries over the last decade.

Table 5.7 Crude steel production by region (1000t)

Year	European Union	North America	Latin America	Asia	World
1983	123,223	89,594	29,105	172,964	663,398
1984	134,434	98,640	33,579	187,210	710,137
1985	135,644	94,705	36,200	193,232	718,941
1986	125,740	88,113	37,848	194,073	713,587
1987	126,537	95,614	40,101	202,730	736,530
1988	137,829	105,516	42,710	219,703	780,178
1989	140,142	104,292	42,759	228,609	785,838
1990	136,758	102,004	38,511	238,895	770,220
1991	137,448	92,726	39,549	249,491	737,075
1992	132,356	98,162	41,368	250,897	722,663

Source: International Iron and Steel Institute (IISI) 1993

5.5. Conclusions

The Brazilian economic and political context has been anything but stable over the last three decades. It has affected profoundly the way enterprises behave. Expansion and recession intervals have been happening since the "economic miracle" of 1968/1973. High levels of inflation coupled with economic and political instability have affected deeply the business environment. However, the 1990's

brought hope of a much more stable conditions, after the success of the "Real" plan, that brought inflation to less than 2 percent a month.

The Brazilian steel industry is currently the world's eighth biggest producer. It is constituted by 27 companies. In 1995, its production capacity reached 28.5m tonnes of crude steel per year. Domestic steel consumption achieved 12.8m tonnes in 1994. Exports in the same year attained 11.08m tonnes of steel. After a period of great instability on sales and profitability at the end of 1980's and the beginning of 1990's, the domestic steel industry seems to have found its route to recovery over the last years. It has witnessed a great number of changes over the last years. Among them is privatisation considered a very important one as since the end of 1993 all state-owned steel companies has changed ownership to private hands. Privatisation has allowed companies a greater freedom to establish new business, partnerships and alliances. There have been some drastic actions related to reduction of personnel and organization restructuring (see next two chapters).

The international steel industry has shown an unstable profile over the last decades. In the 1970's, recession, instability and fluctuations were common ground. In 1987, the industry started recovering when production reached 736.5m tonnes. Then, in 1990, another fall in production happened. However, by 1993, world steel prices have started to increase again. Two years later, steel prices increased by 30 percent in relation to 1993, mainly due to a rise in demand and cut in production and capacity.

6. COMPANY ALPHA

6.1. Introduction

The main objective of this chapter is to examine Alpha within the company analysis framework developed in Chapter 4 (Figure 4.2). Alpha has been a leading steel producer in Brazil over decades. It is considered to be a model Brazilian company with profitable operation, high technical capability and a well disciplined and qualified workforce. Alpha is the second largest steelmaker in Brazil, operating automated integrated hot and cold rolling mills. It produces common flat steel and higher-value-added galvanized products, mainly for the car industry. In 1994 Alpha reported profits of US$344.5m. The return on assets was 14 per cent compared with the year before.

One of the most important issues that this case study will examine is the contribution, if any, of privatisation to the renewed success achieved by the company after 1991, the year of privatisation, or if other reasons explain the increase in productivity, efficiency and competitiveness. The case study presents the historical development of the company and more recent quantitative and qualitative evidence on changes in the company's strategy, internal culture, external relationships, competitiveness and performance. Based on this, a judgement is formed on the changes that can attributed to the privatisation and related restructuring.

6.2. Company background

Alpha is a Brazilian steelmill created in the 1950s in the state of Minas Gerais. In 1956 a joint-venture was established between the Brazilian Government and a consortium of 30 Japanese steel makers and steel-equipment suppliers dominated by Nippon Steel. In 1958, the foundation of the construction was laid, and the company was inaugurated on October 1962 with the starting up of the number 1 blast furnace. Between 1962 and 1965, the company's employees worked closely with the Japanese partners. Many locals went to Japan for training and learn from hands-on operational experience in the partner's production plants. In the early years, the company manufactured rolled products and sold them in the domestic market

only. The initial investment was 270 million dollars at the time, with an initial steel production capacity of 500000 tonnes per year (Table 6.1).

In 1965, the first stage towards vertical integration was inaugurated with the hot-strip mill. The year 1966 was a major turning-point for the company. From that time onwards the company's employees took over management and operational control of the firm. Its personnel have since continued to go abroad for courses and practical experience. They have carried on training, working very closely with foreign technical advisers. In 1970, the company was producing one million tons of steel per year.

As table 6.1 shows, the company continued to build on its initial technological capability, acquired from the collaboration with Nippon Steel, over time. The year 1972 marks the creation, within Alpha, of the Technical Assistance Management Department (TAMD) which took over the coordination of activities related to technology transfer, development of technology related to new business opportunities, acquisition of technology through licensing and other forms of collaboration, and sale of technology and related services. In 1974 the company was authorized by the Brazilian Government to undertake an investment programme to increase its production capacity to 3.5 million tonnes (mt) of steel, which was concluded in 1979. Also in 1974 the company managed to start-up the cold strip mill and inaugurate the number 3 blast furnace. The year after, the number 2 steelmaking plant was inaugurated.

In 1980, Alpha became the first Latin American company to be granted the American Bureau of Shipping (ABS) granted the company the Quality Assurance Certificate. At the end of Phase II, in 1984, production of hot steel reached 3.5mt a year. The steelworks covers an area of 7.0 by 1.5 km. It is situated near the ferrous quadrilateral of the State of Minas Gerais. Alpha has four coke-oven batteries of which two are four meters high with 100 ovens, and two are six meters high with 110 ovens. The total output was 4600 tons of coke/day.

Table 6.1 Main Phases and Description of a Brazilian Steel Company Background

Phase	Date	Description	Comment
I	1956 - 1961	* 1956: a joint-venture was established between the Brazilian Government and a consortium of 30 Japanese steel makers and steel-equipment suppliers dominated by Nippon Steel * 1957: Japanese technology transfer details and the specification of the steelworks plant were agreed * 1958: the foundation of the steelworks was laid * 1961: third year of the plant construction	* period of intense negotiations between Brazilian and Japanese authorities * plant construction period * steel production capacity was 500,000 ton/year * investment was US$270m * technology chosen: coke-based, basic-oxygen, blast-furnace process
II	1962 - 1965	* 1962: on October 26, the steelmill was inaugurated with the starting up of the No. 1 blast furnace * 1963: the steel-making plant, slabbing mill and plate mill were inaugurated * 1965: in May, the first stage towards the vertical integration was inaugurated with the hot-strip mill	* the rolled products started to be sold on the domestic market * period when the company's employees worked closely with the Japanese. Many locals went to Japan to get trained and hands-on operational experience * inauguration of No. 2 blast furnace and cold strip mill
III	1966 -1971	* 1966: the company's employees took over administrative and operational control of the firm * 1970: the Board of Directors delivered a ten year expansion plan to the Government * 1971: stretching the capacity of the original plant and equipment	* the company raised production to 1.0m tonnes of steel per annum * its personnel continue to go abroad for courses and practical experience. They carry on training working very closely with foreign technical advisers

IV	1972 - 1985	* 1972: the Technical Assistance Management Department (TAMD) was created to coordinate the activities related to technology transfer, new business opportunities, coordinate the activities of patents and increase the number of customers of technology and services * 1974: the company was authorized to undertake an investment programme to increase its capacity to 3.5 m tonnes of steel per annum. Start-up of cold strip mill and inauguration of No. 3 blast furnace * 1975: inauguration of No. 2 steelmaking plant * 1976: inauguration of the new plate mill * 1977: the company becomes a member of the International Iron and Steel Institute (IISI) * 1979: the company concluded its five-year investment programme * 1980: the American Bureau of Shipping (ABS) granted the company its Quality Assurance Certificate. Start-up of HC mill * 1981: the production reached 3.5 mi. tons of hot steel per annum	* the main shareholders were: Brazilian Government: 82,322%, BNDES:12,471%, Nippon: 4,648%, minor shareholders: 0,559% * the company was the first Latin American producer to get a quality award from the ABS * it has a great number of quality guarantee systems implanted over the years, based on ISO norms, series 9001 * the company gives technical assistance to the most varied industrial sectors * it has a great number of patents registered at home and abroad
V	1986 - 1990	* 1986: the company started its technological updating program estimated at US$760mi * 1989: the company began a US$600mi five-year modernization programme * 1989: the company reached a record production of 4.5 mi. tons of hot steel	* the technological program is distributed as follows: quality improvement/product upgrading: US$262mi, cost reduction/increase of productivity: US$182m, environmental protection: US$163m, increase of production capacity of cold strip mill: US$41m, maintenance of production capacity: US$112m

VI	1991 - onwards	* 1991: the company was privatized * 1992: the company started a programme which includes constant technological updating, seeking profitability via the upgrading of its products and diversification of business * 1992: the company sold about 1.8 million tons of materials on the international market, with exports to 27 countries: Argentina, China, Japan, Malaysia, Singapore, Taiwan, Thailand, the USA and so on * 1992: the main consuming sectors: auto, auto parts, packing, large pipes, electric equip. /machinery, shipbuilding, distributors * 1993: start-up of electrolytic galvanization line	* the main shareholders are: foundations: 28%, financial organizations: 23%, Vale do Rio do Doce: 15%, Nippon: 14%, Employees: 10%, Steel distributors: 4%, Others: 6% * the company produces carbon and low alloy-carbon steels. Its product lines consist of hot rolled products (plates, hot rolled sheets and coils), cold rolled products (cold rolled sheets and coils, black plates) and electrogalvanized coated products

Source: Company data

In 1986 the company started its technological updating program estimated to cost US$ 760m. Then, over a five-year period (1989-1993), Alpha spent on average US$135m per year, about US$34/ton of produced steel (Soares, 7 Dec 1993). The target areas were quality improvement, product upgrading, equipment and process modernization, cost reduction and productivity improvement and environmental protection. In 1989 the company reached a record production of over 4.5 mt of hot steel, 20 per cent higher than estimated capacity.

On 24 October 1991, the company was privatized by auctioning 75 per cent of voting capital. In November, preferred shares were sold (see ownership section for more details). In 1992, the company started a programme aimed at technological updating, increasing value added of its products and diversification of business (engineering, data processing, equipment, service centres, consulting, industrial maintenance, subsidiaries partnerships). In 1993 the electrolytic galvanization line began production of electrogalvanized coated products to meet the demand by carmakers, for steel body panels.

6.3. Privatisation

The process of sale of shares that Alpha went through was anything but smooth. Both before and during the auction a great deal of skirmishing between different groups (e.g. trade unions, students) did occur due to misunderstandings, novelty, and distrust. The Government failed to explain to the general public the reasons underlying the choice of Alpha as the first company to be privatised. The decision to start the privatisation process through one of the best managed, most profitable and healthiest companies was unreasonable for many people. It seemed that the Government was giving the "family silver" away to private owners. Nevertheless, as at that time the Government had stressed, the reason behind Alpha's choice was to give a push to the privatisation process. It was used as a show-case.

Only after three attempts was Alpha finally sold off. The first attempt to sell it failed amid lawsuits and scenes of violence outside the Rio Stock Exchange. A second attempt again was cancelled due to

legal problems and misunderstandings. Finally, on the 24 October 1991, the company was successfully privatised. The 75 per cent of voting capital on offer was sold by auction for a total of US$1.15 billion dollars. 10 per cent of the voting stock was reserved for an employee share offer. Payment was accepted in a variety of government debt instruments, with investors preferring to use domestic debt paper.

Most of the voting shares went to industrial companies, banks and pension funds. Foreign buyers took only 6 percent of the voting capital, perhaps nervous of the public opposition as evidenced by the demonstrations outside the Rio de Janeiro Stock Exchange.

6.3.1Alpha's privatisation: model, process and consequences

According to Soares (1993), the main problems of the steel industry under public ownerhsip were the instability of the Government to provide resources for adequate levels of investment, increasing obsolescence, loss of competitiveness as a result of technological advance and improving productivity in industrialised countries.

Alpha was chosen by the Brazilian Government to be privatised in the first place due to its reputation for good management, a trained workforce, relatively high level of technological expertise, and a record of profit. Besides, the company was attractive to potential investors taking into account the quality of its products, low- operating costs, and a high level of productivity in comparison with national and international competitors.

The main characteristics of the Company Privatisation Model as stated by the company should be related to the preservation of intangible assets (human resources and technological know-how), transparency, capital democratization, and preservation of strategic potentials. Before the privatisation, the company put forward its views on the privatisation model it preferred. It favoured ownership to shared among employees and retired personnel, Japanese partners, customers, suppliers and financial organizations, Brazilian and foreign entrepreneurial groups and the public interested in the undertaking. In terms of strategic potentials, basically, after the privatisation the management wished to have more autonomy in its strategic decisions

and more active participation of the employees. With greater autonomy, the company intended to increase investments, improve its technology, diversity, integrate vertically, and form partnerships with other businesses (see Table 6.2).

6.4. Applying the company analysis framework

The aim of this section is to examine Alpha within three main components specified in the company analysis framework (Figure 4.2). The three components, management, competitiveness/productivity, and performance are interrelated. Management enables the elements of the company to improve productivity and to enhance performance. Productivity makes performance sustainable and foster it. Performance helps the company to achieve its goals.

6.5. Management

In the company analysis framework, the management organises the company, sets objectives and makes decisions within the context of external influences. The main external factors are the broad social, cultural and political contexts, the international and domestic economic contexts and the company ownership. It is reasonable to argue that in the short run, the social and cultural contexts, their influences on the management style and organizational structure and culture will not change. The previous chapter shows that there have significant changes in the economic context. These could have a direct effect on the management (e.g. making the management realise that their organisations need to be more responsive in a more competitive environment). However, one the most significant effects are likely to be because of the change of ownership. As the following discussion shows, the problem is the difficulty of separating the effects of the change of the broader economic context from those resulting from change of ownership.

Table 6.2 Main impacts of privatisation on Alpha, according to its Chief Executive Officer

Aspects	Characteristics	Key Indicators	Comments
• Strategic	* strategic planning	- autonomy to develop its own entrepreneurial, technological, marketing, human resources, and product goals without government interference - freedom to work within a long-term perspective	- the company has already established partnerships with Brazilian and foreign firms: British Steel, Hitachi, Chugai-ro, Nippon Steel, Ahlstrom Equipment, Magnesita, Fiat, etc (some of these were establised before privatisation).
	* corporate development	- autonomy for establishing strategic alliances, setting up new subsidiaries, new businesses, diversification, verticalization - synergic gains from the shared management model	
• Commercial	* selling effectiveness	- more flexibility, speed, greater freedom in decision-making during the sales negotiation process - more flexibility in price negotiation - more speed in dealing with foreign customers	- greater customer orientation and more emphasis on search for new markets
	* serving the customer	- special attention to clients' needs, deliveries within 10 days, quicker response to complaints	
• Procurement	* purchasing process rationalization	- more speed, simplification, rationalization, freedom for price negotiation - reduction in time required for negotiating supply contracts	_ greater flexibility and freedom in procurement
	* flexibility in purchasing process	- closer association with suppliers of raw materials and other inputs, consignment contracts, use of just-in-time, minimized inventory levels and lower costs of materials	

• Financial	* autonomy in financial transactions	- freedom to develop relationships with as many banks as the company wants, access to credit from Brazilian and foreign organizations, increasing participation in operations in the financial market	- the firm is taking advantage of its well-established position in the market to engage in financial operations (financing, loans, leasing, etc.)
	* business rationalization	- speed in the negotiation process and decision making when closing businesses - reduction of obstacles imposed by government agencies	
• Human resources	* employees	- participation in shareholding, salary levels according to performance, better opportunities for professional development	- in general, the workforce is well-trained, motivated, and keen to upgrade skills - some employees complain that company does not accept new ideas from them
	* company	- flexibility in negotiations with unions, freedom to contract/dismiss and set the company's policy on wages and salaries	
	* potential for improving productivity	- investment in training, salary levels based on efficiency and productivity, retirement incentive plans, planned and negotiated decrease of personnel	

Source: Adapted from Soares, R. C. (1993)

6.5.1. Ownership

Alpha's main shareholders before privatisation were SIDERBRAS (state holding company) with 82.32 per cent of shares, BNDES (Brazilian Development Bank) with 12.47 per cent, Nippon with 4.65 per cent and others 0.56 per cent of shares. As a result, the Brazilian Government had a 94.79 per cent stake in Alpha (Table 6.3).

After privatisation the shareholding picture is quite different. Most of the voting shares went to Brazilian groups, with the largest stakes going to CVRD (Companhia Vale do Rio Doce) and Previ (Banco do Brasil's pension fund).

Table 6.3 Major shareholders before privatisation

Shareholders	% of common	% of preferred	% of total
* SIDERBRAS (State holding company)	87.11	77.53	82.32
* BNDES (Brazilian Development Bank)	7.58	17.36	12.47
* Nippon company	4.99	4.30	4.65
* Others	0.32	0.81	0.56
* Total	100.00	100.00	100.00

Source: BNDES/PND (1991)

Currently, the major voting shareholders are CVRD, PREVI, Nippon company, Company's employees, CVRD pension fund (VALIA), Grupo Bozano Simonsen, Grupo Economico, Privatinvest - DS Mutual Privatization Fund, Grupo Bamerindus, Libero Badaro Administracao e Participacoes, Grupo Banco de Credito Nacional - BCN, Fasal S.A., Grupo America do Sul, Confab, Benafer, Grupo Multiplic, and other smaller shareholders. In fact, Foundations (pension funds) have 28% at stake, Financial organizations: 23%, Companhia Vale do Rio Doce: 15%, Nippon company: 14%, Company's employees: 10%, Steel distributors: 4% and others: 6% (Tables 6.4 and 6.5).

Table 6.4 Major voting shareholders after privatisation

Shareholders	% of shares
* Foundations	28
* Financial organizations	23
* Vale do Rio Doce	15
* Nippon company	14
* Company's employees (CIU)	10
* Steel distributors	4
* Others	6
* Total	100

Source: Company data

6.5.2. Governance

The change in ownership has a direct effect on company governance under Siderbras (the holding company of Brazilian state-owned steel companies), all publicly owned steel companies were ruled by the same decrees and directives with no allowance made for differences between them in terms of performance, culture, and efficiency. This approach has proved very damaging for those companies with a higher performance as there were no incentives to increase their results. The idea was to achieve an average performance that would suit the majority of the publicly owned steel companies.

After privatisation, without the constraints imposed by government decrees and directives, and the standardization of procedures and regulations; companies with better management, skilled workforce and higher competitive strengths were freed to become more entrepreneurial and had the incentives to do so. The liberalization of the economy, the lifting of restrictions to operate fully, the foundation of the Mercosul, were just some the facts that have allowed Alpha to grow and thrive quickly over the last years. For more details see external and internal factors affecting the performance of companies (Chapter 4) and Figure 6.2.

Table 6.5 Major shareholders after privatisation

Shareholders	% of common	% of preferred	% of total
* BNDES(Brazilian Development Bank)	---	31.9	16.0
* PREVI(Banco do Brazil's pension fund)	15.0	---	7.5
* Vale do Rio Doce	15.0	---	7.7
* Nippon Company	13.8	6.7	10.3
* Usiminas employees	10.0	---	5.0
* VALIA(Vale do Rio Doce's pension fund)	7.7	---	3.8
* Grupo Bozano Simonsen	5.3	---	2.7
* Others	32.7	61.4	47.0

Source: Company data, Baring Securities (1993)

6.5.3. Autonomy and incentives

Privatisation has allowed a profound change in autonomy within the company. From a situation of passivity and dependency of decisions taken by Siderbras to a much more dynamic and entrepreneurial attitude. After privatisation, a culture of dependence has been changed deeply towards one that praises initiative and courage to undertake actions that can bring new business opportunities for the company. Managements attitudes are more proactive, seeking new business opportunities and a better approach towards consumers.

According to Soares (1993), after privatisation Alpha enjoys greater autonomy to devise its "own technological, entrepreneurial, marketing, human resources and production goals." Besides,

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According to Soares (1993), after privatisation Alpha enjoys greater autonomy to devise its "own technological, entrepreneurial, marketing, human resources and production goals." Besides,

establishing new investments, alliances, partnerships and associations.

For the employees, the change in ownership brought about participation in shareholding, performance-related pay, increasing opportunities for professional development as the company began to explore business areas both domestic and international. Greater possibilities to travel abroad, retirement incentive plans.

6.5.4. Organizational structure

Alpha has been undertaking a restructuring process either before and after privatisation. Before it, main decisions were related to building up a suitable environment that should enable the company to go to private hands. After privatisation, the restructuring is related to increasing the company's efficiency, performance and competitiveness.

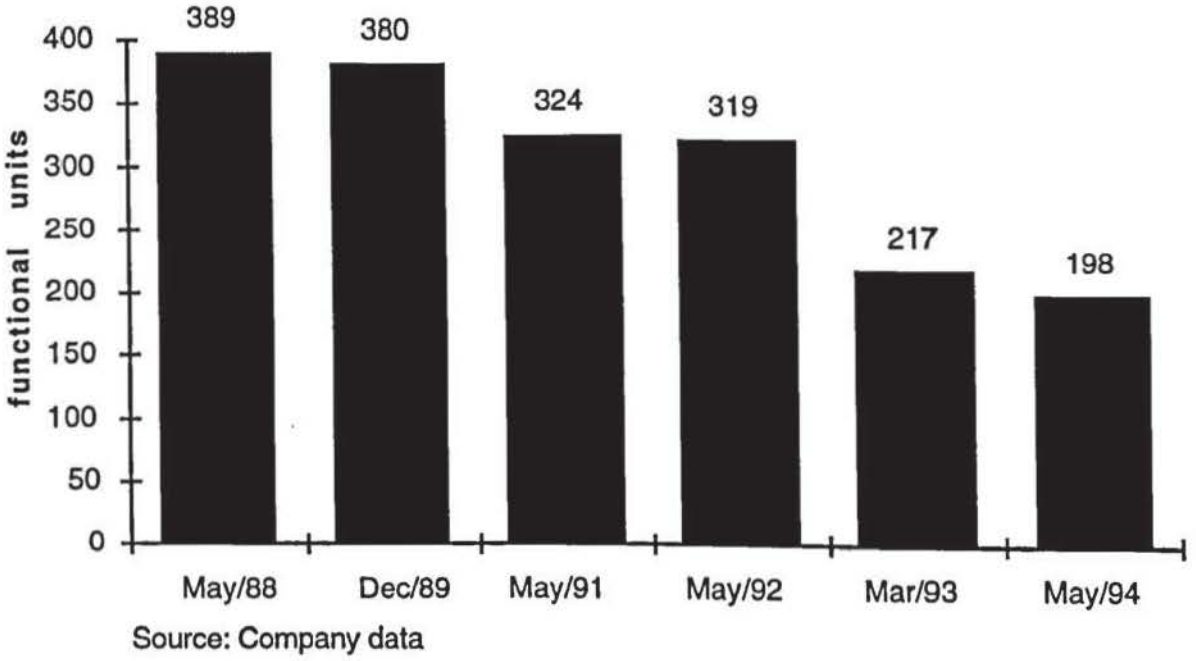
Despite its history of good management, efficiency, well-qualified workforce and, being almost free of political intervention in spite of being a public company, Alpha underwent profound restructuring programme which resulted in reducing the number of functional units (directorates, departments and divisions) by half. The number of staff, while substantial was not as high as in the other steel companies.

The immediate post-privatisation period brought about changes in organizational structure, under the guidance of the Booz, Allen & Hamilton Co. consultancy. The main changes were related to rationalization of administrative processes, management information system, personnel restructuring, and business process reengineering. Hence, organisational efficiency is sought by increasing the range of supervision, simplification of processes, raising delegation of responsibility and authority, rationalization of personnel management, and higher efficacy of management information

Organizational structure changes, in terms of functional unit figures, that took place at Alpha from May/88 until May/94 are set out in Figure 6.1. The reduction of functional units was overwhelming (191 in total). In May/91, Alpha had 324 functional units as against 198 in May/94, resulting in a decrease of 126 units (39%). Levels of organizational structure were reduced and several superintendences, divisions, departments, sections were eliminated. The company

undertook an impressive restructuring programme after privatisation looking for a leaner, more flexible and swifter structure. Throughout the restructuring process, Alpha management kept in mind the preservation of production areas, since they are considered the heart and soul of the company. Even more now, as inflation rates are low, stimulating production instead of speculation in the financial market.

Figure 6.1 Organizational structure changes by functional units



Source: Company data

6.5.5. Strategy

The senior management of the company in pronouncements and publications (Soares, 1993) claim that privatisation has given the company greater freedom to develop and pursue strategies to improve the capabilities, competitiveness and performance of the company. Table 6.2 shows a systematic structure for relating the overall strategy to the main activities of the business. Interviews within the company confirm that there has been a clear change in the strategic direction taken by the management.

The generic strategic framework (Porter, 1985) outlines the main forms of competitive strategies a company could pursue. Within

this framework the company's strategy is shifting towards a broad differentiation (e.g. galvanized steel plates). However, it is not possible to attribute all this strategic change to the privatisation. The capability to produce the range of products which has enabled the company to supply higher value added differentiated products was developed before the privatisation and related technological capabilities developed over a long period of time. Capabilities of the management and the skilled workforce were also legacies from the pre-privatisation period.

However, after the privatisation, the company has greater freedom to pursue business opportunities, and take advantage of its competitive strengths. Before the privatisation, competition in the domestic market between the state-owned steel companies was limited. Since the privatisation, the company has formed closer partnerships and strategic alliances with some major companies (see Table 6.2 for more details).

6.6. Competitiveness and productivity

In the company analysis framework, competitiveness and productivity are closely related. Productivity has two aspects. The quantity of steel produced per unit of input and the value of production per unit of input. The quantity is mainly determined by aspects internal to the company (e.g. management, technological capability, capital equipment and workforce). The value of production is also influenced by external factors such as market conditions. Each aspect is examined below.

6.6.1. Workforce

If the workforce is underemployed or poorly employed, reduction in the size of the workforce would be expected to have a significant effect on the physical productivity. So, the company's workforce has been reduced gradually during the last few years. In 1989, the company had 13,838 employees. There was a reduction of 2,894 employees from 1989 till 1993. At the end of the 1994 the number of employees was 10,488. All in all, 3350 employees lost their jobs over a six-year period, accounting for 24 per cent of the original workforce (Figure 6.2). The company management has stated

that the decrease in number of employees after privatisation was mainly through incentives for retirement and not redundancies. However, the programme of reducing the workforce, including redundancies, which started by 1989, was part of the preparatory restructuring of the company before privatisation.

The major reductions in the number of managers took place after 1991, the year of privatisation. The number of managers was reduced from 487 in 1991 to 217 in 1993, a reduction of 270 people. This was associated with changes in the management structure under which Alpha reduced the levels of hierarchy and the number of departments, divisions, and sections. The restructuring process has been quite profound in almost all areas of the company. Downsizing has mainly affected middle management and administrative areas. Operational areas have seen one of the lowest percentage reduction (Figure 6.3).

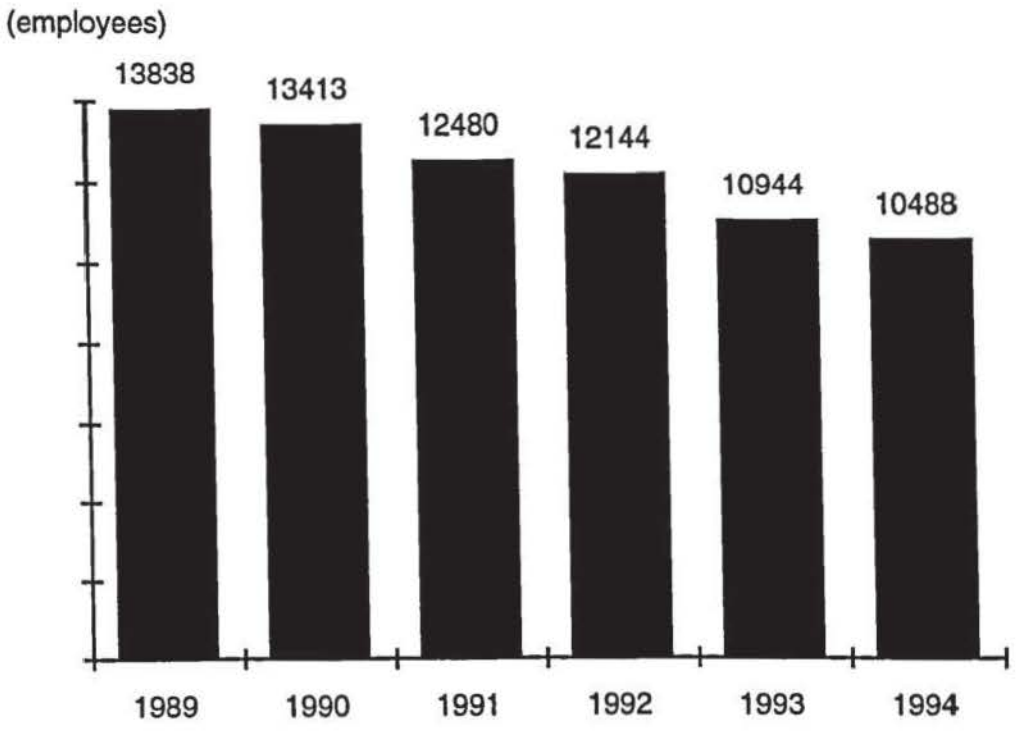
The number of graduates increased by 5% (53 people) from 1991 (969 people) till 1993 (1022). After privatisation the company has been trying to improve the quality of the workforce even more. The blue-collar workers suffered a reduction of 526 (8% of the total in 1991) people from 1991 until 1993, basically due to retirement and improvement of productivity. However, the category that suffered the major impact is that of clerks. They have been reduced by almost 30 per cent (301), from 1006 in 1991 to 705 in 1993.

6.6.2. R&D and Technological capabilities

Alpha is considered to have the highest level of technological capabilities in the Brazilian steel sector an research and development. The company's long-term relationship with Nippon Steel, which is discussed further below, has been a major factor in developing technological capability. More recently, the company has established links with other companies in collaborative research and training (e.g. with British Steel).

R&D expenses have been around 0.6% of total sales. This figure is not high in comparison with that of Japanese steelmakers. It means there is room to increase expending on R&D. This will depend on the company's strategy in the near future.

Figure 6.2 The company's workforce by year



Source: Company data

R&D is important since it enables Alpha to produce, to assimilate and to adapt different products to different consumer demands. When a production problem arises a R&D team is called in to try to sort it out. According to one of the interviewees, with the help of R&D the company is able to 'consolidate its reputation as a technology generator, to develop the potential for rendering technical assistance, and adapting the production to the world patterns of security, quality, costs and productivity'.

Most of the R&D team have been abroad in countries such as Japan, UK, Germany, and the USA. They attend doctorate programmes, technical training and conferences.

The major functions of R&D are to enable the company to absorb more advanced technology, adapt it and even sell it to others in Brazil and abroad, often in collaboration with the original technology providers.

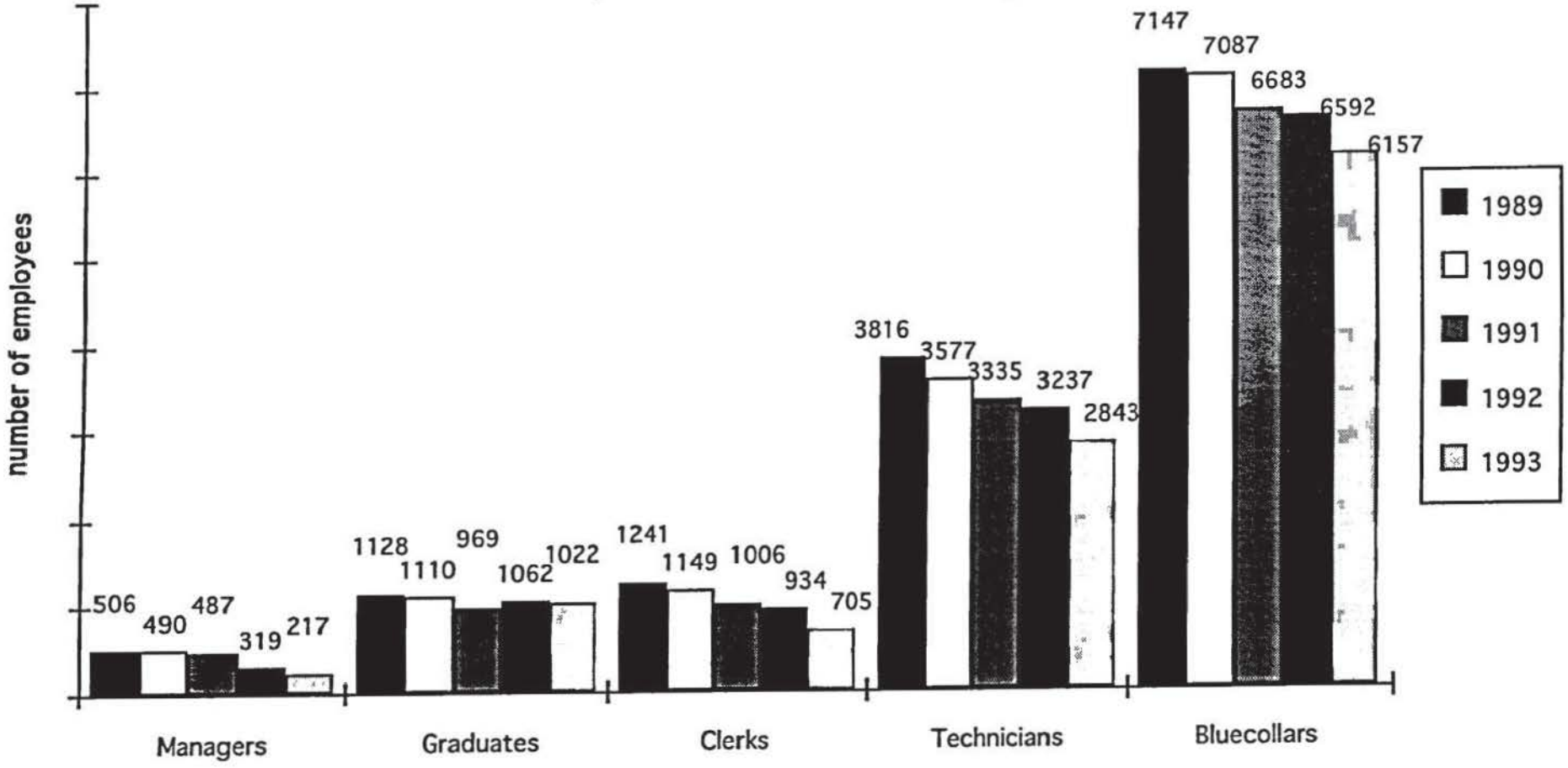
6.6.2.1. Technological capability

Alpha's technological capability is a distinct competitive advantage and has therefore been examined here at some length. A number of strands in the strategy and economics literature emphasise the importance of capabilities and strategies at the enterprise level, including technological aspects, in explaining their own performance as well as the performance of the economies in which they operate (Rumelt,1984; Teece,1986 and Porter,1990). Lall (1992), in particular, considers technology transfer issues for firms in industrialising countries.

Technological knowledge is not shared equally among firms. Nor is it easily imitated by, or transferred across firms. Transfer requires learning as technologies are tacit and their underlying principles are not always clearly understood. Acquiring a new technology and gaining mastery of it requires appropriate cultural, institutional and market contexts, strategies, skills, effort and investment by the receiving firm. The extent of competence achieved is uncertain and necessarily varies between firms according to the existing capabilities, objectives and strategies and the external context. These features of the process of technology transfer are recognized by a number of authors (Pavitt, 1985 and Afriyie, 1988).

Dahman et al (1987) provides a useful account of the early development of technological capability in Alpha. According to these authors, from the beginning, the locals and foreigners worked closely. This was made possible because of collaboration with Nippon Steel an other Japanese companies when the company was founded. The Brazilian employees has excellent opportunities to learn about many aspects of the design, equipment, selection, installation, construction, start-up, and operation of the plant. In addition there was an extensive training programme in Japan under which the company's employees acquired the basics of how to deal with an integrated steel plant. A more detailed picture of the company's development of technological capability is presented here. Table A1 shows the Framework adapted from Lall (1992), which has been used to examine the company's technological capability.

Figure 6.3 Workforce breakdown by category



Source: Company data

The main phases of the company's technological development can be identified from Table 6.1. Having technology providers as part owners was clearly a strong advantage for the company. During phases 1 and 2 (in Table 6.1), installation and expansion of production capacity were major activities. Nippon Steel was responsible for overseeing these activities. Phase 2 in Table 6.1 corresponds with the "basic stage" in Table A1 during which administrative and operational control were largely in the hands of Nippon Steel. Training programmes in Brazil and Japan for company technicians at all levels continued throughout this stage.

Phases 3 and 4 in Table 6.1 broadly correspond with the intermediate stage in Table A1. In 1966, company managers and employees took over administrative and operational control including technical responsibilities. However the emphasis on training continued. During phase 3, capacity stretching was necessary as the firm could not obtain funds for expansion because of the national financial crisis (see Dahman et al (1987) for more detailed discussion). Value added was also increased by improving the quality of the steel and making special steels such as thick ship plate through licensing and technical assistance contracts.

Along with improving technical capability during phases 3 and 4 between 1966 and 1985, the company had a substantial investment programme as indicated in Table 6.1. During phase 4 a shift was in progress from the "intermediate stage" to the "advanced research-based stage" (as described in Table A1). Creation of the Technical Assistance Management Department (TAMD) to acquire and assimilate technology and develop new technologies (discussed in the next section) was a clear indication of the shift from the "intermediate" to the "advanced" stage.

Since 1986 the company could be regarded as being in the advanced innovative stage as it has demonstrated the capability to (a) recognize technology requirements, (b) assess alternative technologies and suppliers, (c) assimilate technologies purchased from outside and (d) develop technologies for internal use and for sale. Development of special relationships with other steel producers and major customers has also been a significant aspect during this stage. The management culture within the company has also been strongly influenced by its long association with Nippon Steel. An

important aspect of this culture is the strong emphasis on training and maintaining and enhancing technical competencies demonstrated by the continuing programme of technological improvement (Table 6.1).

Nippon Steel has given technical assistance to Alpha since 1966. The company has renewed the technology transfer contract with the Japanese group recently. This will be the fourth technology agreement between the two companies. Nippon Steel, the world's largest steelmaker, will extend the scale of cooperation to the full production process, including productivity, total quality management and cost reductions. A more detailed discussion of Alpha's acquisition of technological capability and its implications for strategy and competitiveness is provided in Barbosa and Vaidya (1995).

6.6.2.2. The role of TAMD and other parts of the company

TAMD is one of the most important departments under the Development Directorate. Other departments under it are Engineering, New Business, the Technical Information Department (TID) and a company manufacturing large metal presses. The Development Directorate is one of the five directly under the company president (the other are Finance, Commercial, Industrial which includes operations and maintenance, Development and 'Special').

TAMD was set up in 1972 to co-ordinate technology transfer activities which include: (a) marketing of the technology and services; (b) development of new business opportunities in selling technology and services through the search for potential clients and matching customer needs with the technology and expertise available within the company; (c) co-ordination of the technology transfer process which involves purchasing and selling of technology and services, and (d) responsibility for registering and protecting patents.

The firm sells technological expertise in areas of steel plant operation and maintenance, engineering, equipment upgrading, transport, production planning and control, purchase, process automation, industrial security, environmental and managerial activities (Table 6.6).

In purchasing and selling transactions, TAMD is responsible for matching technology needs and suppliers, negotiation of legal registration of the contracts and execution, control and follow-up of the technology transfer process.

TAMD works within a clear policy on technology development, acquisition and selling. Formally, the introduction of a new technology follows a sequence of stages which are selection, acquisition, absorption and adaptation, mastering and upgrading and commercialisation. When the need for a process or product technology is recognized, an assessment is made to determine whether it can be developed internally or bought from an outside supplier. Company interviews indicated that some employees within TAMD and elsewhere in the company are unhappy about how decisions are made and feel that insufficient attention is paid to the flow of communications within the company and suggestions on technology and related matters have not been accepted as frequently as they should be. This leads to a slowing down process of the change and adoption of innovations.

The company has established principles for technology acquisition. The firm avoids turn-key projects where the opportunity to learn about technology is limited. It also prefers to acquire technology from suppliers who are willing to supply all the stages of the technology required (see Table A1). A realistic assessment of the company's capability to assimilate the technology and the probable success of the technology transfer process is also carried out (Nogueira et al, 1993). Advanced technologies which are beyond the reach of the company are avoided (Table 6.7).

The Research Centre is in charge of the internal technology development. The Technical Information Department (TID) keeps the company abreast of technical and commercial developments in the international iron and steel industry. In addition to maintaining a library and a database, the department produces reports, abstracts and technical analyses to meet specific demands for information, is considered to be the best source of information on the steel industry in Brazil and is also used by other Brazilian companies.

TAMD works closely with the Research Centre and other parts of the company at different stages of the technology transfer process. In introducing new products, at the selection stage, the Commercial

Development Department which is responsible for marketing and selling plays an important part. Where the technology to be bought or sold is concerned with production processes the Maintenance and Operations Departments become involved. Following the Japanese model, decisions are taken by consensus involving people from different departments. When selling technology, the company attempts to protect the most advanced research and technologies developed internally for its customers and partners.

6.6.2.3. Implications for competitiveness and productivity

The company has been improving its level of technological capability and commercial success over time. One of the most important external contributing factors in this company's success has been the long-term, and continuing, role played by Nippon Steel as a part owner and technology supplier. However, this by itself would not have been sufficient without the continuing emphasis on developing technological capability and becoming a technology exporter and the clear and well-executed strategy on technology acquisition. For example, as noted above, the company does not acquire any technology without full knowledge of its specifications and operations and has a policy of acquiring only those technologies that it is capable of absorbing, even if they are not the most advanced.

Table 6.8 summarizes the technological capabilities and advantages of the company as well as the obstacles to enhancing them. The capabilities have arisen from the acquisition and use of technical knowledge and experience of technology transfer over a number of years. The company has recognized technical capabilities as important 'specialized factors' (see Porter, 1990) which have been developed and internalized.

Table 6.6 Some of technologies sold to Brazilian and foreign companies

AREAS	TECHNOLOGY	COUNTRY
• Research	* technical assistance general agreement in the research field * research to determine the transformation curve of steel continuous cooling * advisory services on the utilization of super fines	* Brazil, Venezuela
• Training	* vacuum degassing operational training * operational training for a steel plant static control * operational training of sliding valve system in steel ladle * training in techniques of iron ore utilization in the iron and steel industry * training in operational techniques of metallurgical and production control, mechanical/electrical maintenance, plate rolling and hot scarfing * operational training on steel plant commissioning * operational training for start-up plate heat treatment line * training in steel manufacture techniques and heat treatment	* Brazil
• Industrial technology	* supply of industrial technology in the continuous casting * supply of industrial technology in the blast furnace area	* Brazil , Argentina
• Industrial safety	* technical assistance in the industrial safety area	* Argentina
• Maintenance	* services/specialized advisory in maintenance techniques	* Portugal

Table 6.7 Some of the technologies that have been bought

AREA	TECHNOLOGY	COUNTRY
* Technical assistance	* general technological assessment of the steelworks	* Japan
* Training	* research and development	* Britain
* Technical assistance and training	* electrolytic galvanization line technology * company and university cooperation * advanced industrial technology * annealing furnaces industrial technology * tampering mill technical assistance	* Japan, Germany, Brazil

Source: Company data

The continuing ties with Nippon Steel and other foreign enterprises make it easier to access new technological developments and form alliances for marketing and selling products and technologies especially in Latin America. The company's cultural affinity to customers in Brazil and the rest of Latin America makes it an attractive partner for Japanese and other foreign firms in accessing markets in this region. From 1972 to 1993 it had a net surplus in its technology and services trade, purchasing US$44.7 million worth of technology and selling US$83 million worth. It is one of Brazil's largest and most profitable steel producers and exports about 50 per cent of its production.

The firm recognizes that internationally it cannot compete with the technologically most advanced companies because of the high cost

of developing some technologies and the reluctance of foreign companies to sell the most advanced technologies.

Until recently the company's ability to exploit its technical and related competitive advantages were restricted by government market controls and the company's status as a state enterprise. Funds for investment were also restricted (especially in the 1980s) and the company could not make important decisions on investment and commercial initiatives without government approval. There has been a strong improvement in the financial performance since the privatisation and restructuring, and there is a substantial investment programme to modernise parts of production capacity and to reduce environmental pollution. Arguably the company is now in a better position to use and further develop its technological advantages.

6.6.3. Production capacity

The company's nominal production capacity is 3.5m tonnes a year. However, Alpha has been able to reach well above this mark through improvements and adaptations of machines and equipments. The company's crude steel production in 1993 was nearly 4.2 million tonnes a year, 20 per cent higher than its nominal installed capacity (Table 6.9). It represented 16.5 per cent of the Brazilian crude steel production (25.2 million tonnes a year). In 1980, the company's production reached 3.2mt pa, about 21.1 per cent of the Brazilian production. Ten years later, production achieved 3.5mt pa - almost 10 per cent higher than in 1980 - despite all the problems of the Brazilian economy during the eighties - the "lost decade" due to bad economic and social achievements, and despite the increase in national production capacity because of the starting up of new steel plants. In 1991, the year of the privatisation, production of crude steel reached 4.1mt a year, representing 18.3 per cent of the total Brazilian production. After privatisation, production has been stable around 4.2mt pa. There is a project going on to increase production of liquid steel by over 1mt a year. The total production capacity should reach more than 5.0mt pa from 1996/1997 onwards, according to some analysts.

Table 6.8 Technological capabilities and obstacles to further improvement

Aspects	Characteristics
• Capabilities	* advanced process capability in Brazilian context * capability to produce higher value added products * long tradition and experience in technology transfer * high level of technical education and training and ability to assimilate foreign technology * policy to prepare personnel before acquiring technology and other changes * good internal infrastructure: Research Center and Technical Information Department * internal culture that considers technological capability a fundamental tool to improve competitiveness * technology improvements and partnerships identified as driving forces for competitiveness * cultural and language affinity in Latin American markets
• Obstacles	* high cost of some technologies * reluctance of foreign suppliers to sell new technologies to a capable competitor * internal resistance to new technologies and R&D expenditure * cultural obstacles and language differences

Although Alpha has been one of the most profitable steel companies in Brazil, its production has not grown significantly in the last 5 years. It appears that the improvements in its profits are built on the value of its products rather than the quantity of production (see later sections for further discussions).

Table 6.9 Crude Steel Production (000t)

YEAR	Alpha	Brazil	Alpha/Brazil(%)
1980	3240	15337	21.1
1981	2274	13226	17.2
1982	2880	12995	22.2
1983	2690	14671	18.3
1984	3162	18386	17.2
1985	3328	20456	16.3
1986	3073	21233	14.5
1987	2874	22228	12.9
1988	4120	24657	16.7
1989	4395	25055	17.5
1990	3464	20600	16.8
1991	4135	22617	18.3
1992	4033	23898	16.9
1993	4140	25149	16.5

Source: IBS (1994), Company data

6.6.4. Finance/investment

The main purposes of the investment programme are related to increasing the range of products with higher added value, augmenting productivity and improving the environment. During the last decade, the most important part of Alpha's investment programme has been the installation of a new electrolytic galvanizing line. A quarter of the total investment funds in 1990 and 1991 were spent on this line. In 1993, investment in the electrolytic galvanizing line accounted for 51% of the total investment (Table 6.10). The total cost of the line is estimated at US$200m and the production capacity is expected to be 360,000 tonnes of zinc-galvanized steel which has higher corrosion resistance and is suitable for shaping an painting. Galvanized sheets production started in 1993.

Galvanized sheet steel is a high value added product with strong growth in demand because of its use in the car industry. With the electrolytic galvanizing line, Alpha aims to enter a niche from which it has been excluded so far and one which it considers strategic.

Other main areas of investment are environmental protection (15 per cent of total investment in 1993), production capacity maintenance (14 per cent of total investment in 1993) and technological modernization (11 per cent of total investment in 1993).

However, these investments were planned before privatisation and it is not possible to determine whether privatisation has had any impact on the availability of funds for them and their implementation. The company has also a combining programme of expansion and acquisition of companies.

Table 6.10 Investment programme (%)

Investment	1989	1990	1991	1992	1993
* Technological modernization	47	48	23	28	11
* Production capacity maintenance	32	20	20	---	14
* Electrolytic galvanizing line	7	24	25	63	51
* Environmental protection	14	8	4	9	15
* Production expansion	---	---	---	---	9
* Others	---	---	28	---	---
* Total	100	100	100	100	100

Source: Company data

Influences on productivity (value/unit) - external and internal

Details about external and internal influences are dealt with in Chapter 4, section related to the company analysis framework.

6.6.5. Finished products

Alpha is not a producer of commodity products. Its range of products mainly includes higher value-added finished steel products which are more profitable. Alpha produces a wide variety of finished

steel products, including hot-rolled steel, cold-rolled steel, heavy plate, slabs, uncoated rolled steel and, recently, it started the manufacturing of galvanized plate demanded by carmakers. Production of hot-rolled steel - most used in autoparts, containers, compressors and structures in general, steel welded tubes (small diameter), civil engineering (bridges, viaducts, pedestrian bridges, commercial and residential buildings, industrial sheds and so on), agricultural equipment industries - in 1989, stood for 33.0 per cent of the total volume of 3.9 mt pa. In 1991, production rose 8.2 per cent by comparison with 1989 (1.3 mt pa). That year hot-rolled steel production represented 37.1 per cent of the total volume. It was a year when the Brazilian economy began to show the first signs of recovery.

In 1993, production decreased 12 per cent in comparison with 1989. In terms of total volume, hot-rolled steel represented 29.9 per cent. Problems related to political instability and higher output from competitors are the main reasons for decrease (Table 6.11).

On the other hand, using the first half of the year as a measure of comparison, in 1992, hot-rolled steel stood for 37 per cent of total volume. In 1993, there was a reduction of 8 per cent. However, in 1994, a recovery of 6 per cent, taking it to 35 per cent of the finished products total occurred (Table 6.12).

Cold-rolled steel products are most used in household appliances, steel furniture, electric motors, food containers, autoparts and car bodies. In 1989, the company produced 1.1mt of cold-rolled steel (27.9% of total volume). In 1991, production reduced by 18.5% in comparison with 1989. It stood for 23.7% of the total volume (3.4mt a year). In 1993, production again reached the total of 1989 (1.1mt a year). In terms of total volume, cold-rolled steel represented 28.8%. If the first half of the year is used as a measure of comparison, in 1992, cold-rolled steel stood for 27.0% of the total volume. In 1993, the volume increased by 4.0%, reaching 31%. Yet, in 1994, production in the first semester dropped to 29.0%.

Table 6.11 Comparative production of finished products (000t)

Finished Products	1989 (000t)	(%va)	1990 (000t)	(%va)	1991 (000t)	(%va)	1992 (000t)	(%va)	1993 (000t)	(%va)
* Hot-rolled steel	1,271.7	33.0	1,155.9	34.2	1,376.6	37.1	1,304.6	34.8	1,118.7	29.9
* Cold-rolled steel	1,077.8	27.9	946.0	28.0	878.9	23.7	1,028.8	27.5	1,077.8	28.8
* Heavy plate	983.9	25.5	915.6	27.1	896.2	24.2	878.4	23.5	901.6	24.1
* Slabs	412.8	10.7	258.3	7.7	444.9	12.0	436.4	11.7	570.4	15.2
* Uncoated rolled steel	110.3	2.9	99.4	2.9	110.8	3.0	94.6	2.5	74.6	2.0
* Galvanized plate	-----	----	-----	----	-----	----	-----	----	4.7	0.13
* Total	3,856.5	100	3,375.3	100	3,707.4	100	3,744.9	100	3,747.7	100

Source: Company data
va: vertical analysis

Heavy plates are used in a wide range of products. Beginning with shipbuilding, civil construction, steel welded tubes (large diameter), through to manufacturing autoparts and industrial equipment. Production of heavy plates, in 1989, stood for 25.5% of total volume of 3.9mt a year. In 1991, production fell by 8.9% in comparison with 1989 (0.98mt a year). In terms of total volume, heavy plates represented 24.2%. In 1993, production fell by 8.4% in comparison with the year of 1989. In total volume it stood for 24.1%.

Using the first semester as a measure of comparison, in 1992, heavy plates represented 25.0% of the total volume. In the first half of 1993 there was a decline of 3%, down to 22%. In 1994 there was yet another reduction of 4.0% in comparison with 1992 production.

Table 6.12 Finished products by total volume (1st half of the year)

Product	1992 (%)	1993 (%)	1994 (%)
* Hot-rolled steel	37	29	35
* Cold-rolled steel	27	31	29
* Heavy plate	25	22	21
* Slabs	8	16	12
* Uncoated rolled steel	3	2	2
* Galvanized plate	--	--	1
* Total	100	100	100

Source: Company data

Slabs are mainly exported to other steel companies for further rolling. In 1989, Alpha's production reached 0.41mt pa, nearly 11.0% of total volume. However, in 1991, there was an increase of 7.8% in output in comparison with 1989. In terms of the total volume it represented 12.0%. Exports had an impressive increase at that time. Then, in 1993, production reached 0.57mt pa. It had an expansion of 38.2% in relation to 1989 and of 28.2% in comparison with 1991. In terms of total, volume slabs stood for 15.2%. It means that the domestic market was not able at that time to absorb the production. For that reason the company was looking for consumers abroad. The problem with exports is that prices are not as good as in the

domestic market. When the domestic economy is booming, the company prefers to sell its products internally, since it can get bigger profits.

In 1993, the company started its production of electrolytic galvanized products in order to upgrade its product mix with higher value added products and increase, mainly, its share of the automobile industry. Galvanized sheets, coated with pure zinc or zinc and nickel alloy, are corrosion resistant. Uses range from carmaking to household appliances and building. At the end of 1993, production of galvanized plates reached 4700 tonnes. In the first half of 1994, it represented 1.0 per cent of the total volume. Overall, Alpha improved its productivity by maintaining the volume of production with a substantial reduction in the labour force.

6.6.6. Price/deregulation

Alpha, when it was state owned, could not be accused of being a drain on the public purse or the private sector. On the contrary, government price controls over decades benefited private sector users of steel (for example, automobile industry, industrial equipment, and home appliances). The company succeeded in showing a healthy balance sheet almost throughout its period as a state-owned company (1956-1991), in spite of the low prices.

In July 1991, the government control over domestic steel prices was removed, allowing an average price increase of 30 per cent in 1992.

The removal of price controls was accompanied by deregulation of the market which permitted the domestic steel companies to compete with each other. Tariffs on imports were also lowered at the same base. The deregulation also provided an opportunity to Alpha to acquire or to have stakes in many dealers which sold its products. Before privatisation, most of Alpha's production was sold via dealers. This way of distribution reduced Alpha's profitability as the dealers made a significant profit in the transactions. The price increase made a large contribution to the increase in the revenue and contributed to the increase in profits.

6.6.7. Market strategy

Before 1991, the Brazilian market was protected from foreign competition mainly due to the high tariffs imposed by the government. At the beginning of the 1990s, the government started a programme of gradual liberalization, reducing tariffs and taxes, and allowing the entrance of foreign products to compete with the local goods. The aims were to improve the quality of products available, reduce domestic prices and help to decrease the high levels of inflation.

After the removal of price controls and market liberalisation all steel companies needed to pay much greater attention to their competitive positions in the market and be responsive to their customer's requirements. For example, commodity steel producers selling their products based on a price advantage had to ensure that their costs were sufficiently low for them to be able to operate profitably at competitive prices. Alpha's productivity performance enabled it to improve its competitiveness. In addition, Alpha's technological capability and continuing links with technology suppliers enabled it to develop a market strategy which focused on higher value added market segments.

6.6.8. Relationship with customers

An important aspect of the market strategy is the development of close relationships with large customers. This enables coordination of production plans and therefore better matching between production and demand. Some major customers such as car manufacturers may require close integration between steel production and manufacture of car components with the final finished steel production located close to the customer. Alpha has such an arrangement with Fiat. Other forms of collaboration are joint export programmes and development of products and businesses in partnership. Privatisation has helped the company to free itself from legal constraints that were imposed by government regulations that prevented a closer relationship with private customers.

6.7. Performance

Performance is the third component of the company analysis framework. It measures the outcome of the whole process in which changes in management and the policies and actions of management influence productivity and competitiveness as well as performance. The performance measures used here were discussed in Chapter 4.

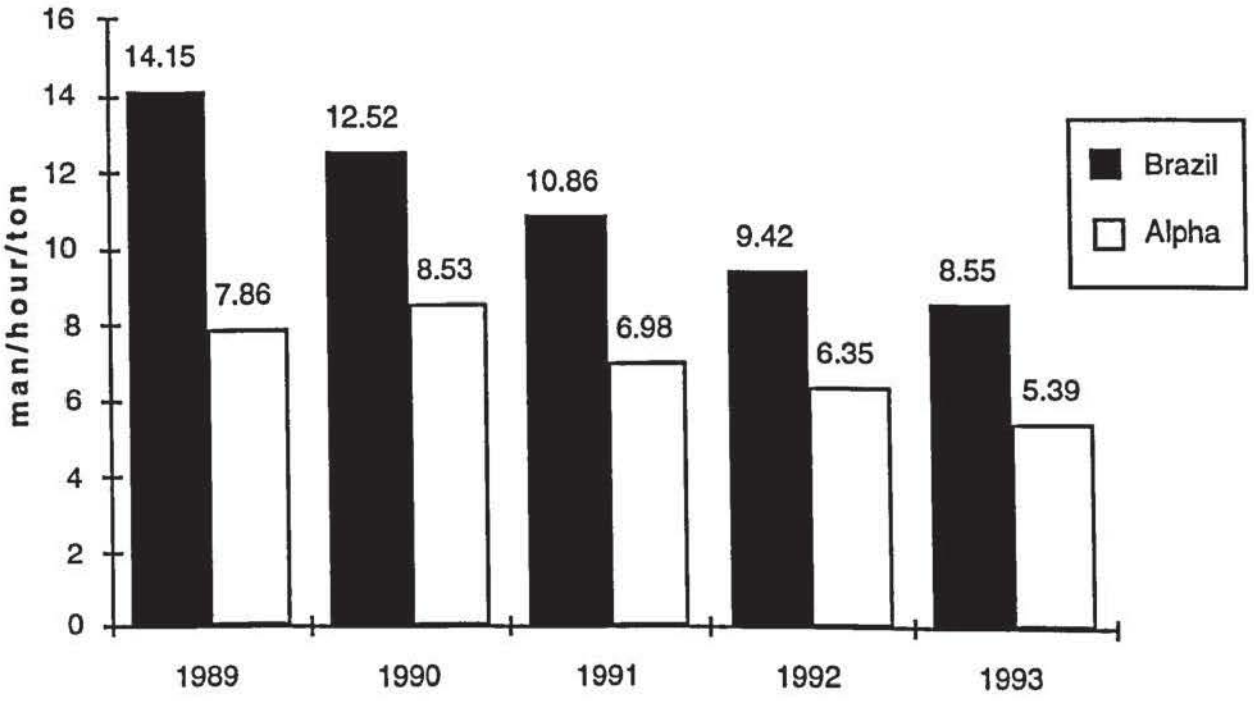
6.7.1. Labour productivity

Overall, the labour productivity of the Brazilian steel companies' is worse than that of companies in the industrialized countries. Figures from World Steel Dynamics (WSD) report (1993) show that on average Brazilian productivity is 40% below that of companies from the USA (5.1 m/h/t), Japan (5.1 m/h/t), Germany (5.3m/h/t), Korea (7.5 m/h/t), UK (5.4 m/h/t) and France (5.2 m/h/t).

Figure 6.4 compares Alpha's labour productivity with the average for all Brazilian steel companies. The measure used is the number of man-hours required to produce one tonne of steel (m/h/t). Therefore, higher numbers represent lower productivity. It is clear that Alpha's productivity is much better than the Brazilian average throughout the period. Brazilian productivity has improved every year with 40 per cent improvement between 1989 and 1993. Alpha's productivity has also improved each year with the exception of 1990. In this year, there was a fall in demand and therefore the company decided to do essential maintenance during that year.

Figure 6.5 shows another measure of Alpha's labour productivity, tonnes of steel produced per man/year employed. Between 1989 and 1994, productivity increased by 17 per cent. Both the measures show improvements in productivity especially since 1991. According to Alpha, these improvements have resulted from the adoption of a profit-seeking approach, restructuring and rationalization, improvements in technological and managerial effectiveness, and reduction of employment. Privatisation played its part in these changes since it gave Alpha the freedom to take measures that were not possible under strict public control, notably the reduction of the workforce and restructuring and rationalisation.

Figure 6.4 Steel productivity in Brazil and Alpha

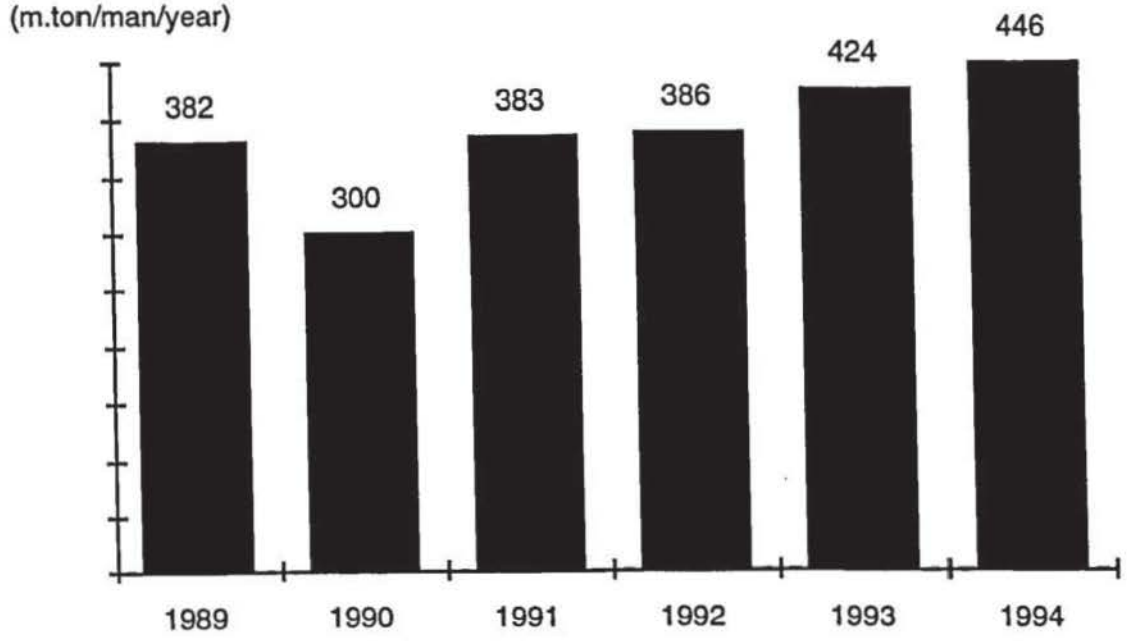


Source: Company data, IBS (1994)

A side-effect of the increase in productivity through restructuring and rationalisation is that employees feel they are under greater pressure. One of the interviewees stated:

> "Before we used to do things much more at ease. Now, everything must be done quickly. The work environment is becoming demanding and stressful. It is not unusual to stay on at work till late evening. There are more things to do and fewer and fewer people to share the burden"

Figure 6.5 Alpha's labour productivity



Source: Company data

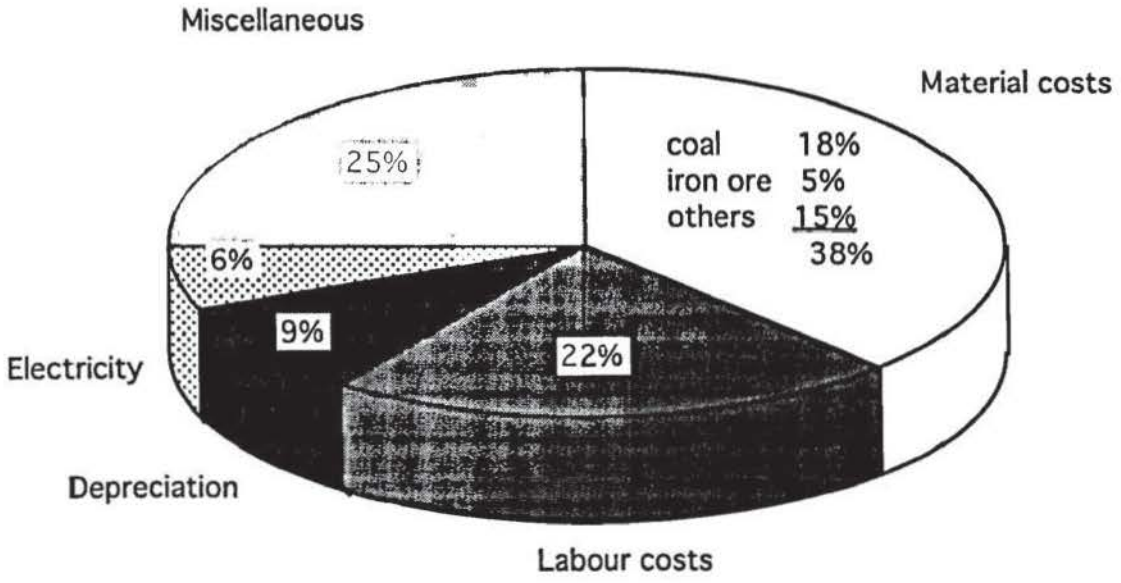
6.7.2. Costs

The company is a low-cost, modern producer. It has low labour costs by international standards and its location close to one of the largest Brazilian deposits of high-grade iron ore enhances its cost competitiveness. As Figure 6.6 and Table 6.13 show, raw materials are the largest component of the cost structure. Due to its strategic position, costs of raw materials for the company are lower than for European and Asian competitors (Amsden, 1989:298). They account for 38 per cent of total costs and 29 per cent of net sales. The main components of material costs (38 per cent) are coal (18 per cent), iron ore (5 per cent) and others (15 per cent). Coal and iron ore are the basic elements of steel. They account for 20 per cent and 10 per cent respectively of total manufacturing costs.

The main suppliers of coal in 1993 were the USA (40.6%), Australia (31.8%), Canada (14.0%), Poland (11.5%), South Africa (2.1%). From coal, Alpha produces chemical products such as ammonia, naphthalene, pitch, creosote oil, anthracene, disinfectant oil

and light oil (BTX) for use in refrigeration, fertilizers, plastic, aluminum, wood preservation, and so on.

Figure 6.6 The company's cost structure in 1993



Source: Company dat

Table 6.13 The company's cost structure as % of net revenues

Items	1992 (% of net revenues)
* Material	29
* Labour	18
* Other production	14
* **Manufacturing costs before depreciation**	**61**
* Depreciation	8
* **Total manufacturing costs**	**69**
* Selling, general and administrative expenses	15
* **Total**	**84**

Source: Company data

The main suppliers of iron ore are Companhia Vale do Rio Doce (CVRD) and Mineracao Trindade (Samitri). Brazilian steel producers have benefited from having a low cost iron ore supply mainly due to their location. Also worthy of note is that the Brazilian iron ore is of good quality. In 1993, the iron ore domestic price was around US$8.4 per tonne (FOB-mine) while on the international market the price was US$17.3 per tonne (FOB-port). The difference was mainly due to railway freight. The company used to pay in 1993, US$11.5-12.0 per tonne including freight. Asian producers pay around US$30.0 per tonne and Europeans US$26.O including shipping costs (Baring Securities, 1993).

Alpha's labour costs account for 22% of total costs or 18% of net sales. Labour costs are low in comparison with other producers from Europe, America and Asia. The average wage cost in Germany is US$33.00 an hour, in Japan and in the USA it is US$30.00 an hour, France is US$27.00, the United Kingdom is US$18.0, Korea is US$12.00 and in Brazil it is US$8.00 an hour. At Alpha the average wage cost is US$9.00 an hour, over US$1.00 more than the Brazilian average. Although wages paid by Brazilian steel makers are relatively low, their employees' productivity is about 40% below that of other producers from the countries mentioned above because of excess of man-hours employed and relatively outdated plant and equipment.

Cost structure is also compounded by depreciation (9%), electricity (6%), and other costs (25%). The company uses the straight line as method of depreciation. Mill equipment has a 5% depreciation rate while other fixed assets have 4%. Manufacturing costs before depreciation stand at 61% of total net sales. Total manufacturing costs represent 69% of total net sales after depreciation.

Selling, general and administrative expenses (SG&A) have increased in recent years caused by higher port charges, sale fees and distribution costs. As exports rise, SG&A tend to rise as well. They account for 15% of total net sales. Total costs accounted for 84% of the total net sales in 1992.

In summary, the strengths of the Brazilian steelmakers are based on low labour costs, iron ore, and electricity power. Limitations such as products with low value added, low industrial

automation rate, long distance from the major international consumers, and low productivity are disadvantages. Alpha has the benefits of the low costs but not the disadvantages faced by many other Brazilian steel producers.

6.7.3. Sales and marketshare

The level of sales in the domestic market are very sensitive to macroeconomic policies and the level of economic activity. In 1989 due to a "summer shock" plan of economic stabilization with a price freeze, a new currency called "new cruzado", further measures of indexation and a rise in interest rates, this gave companies and consumers the confidence to start increasing production and expenditure. As a result, in 1989, demand for steel products soared. Brazil's crude steel production reached 25.3 million tonnes, one of the highest levels over many years. Alpha's sales in the domestic market reached 2.58 million tonnes representing 69 per cent of the entire sales (3.75mt).

In 1991 after two new emergency plans of economic stabilization (Collor I in March 1990 and Collor II in January 1991), the Brazilian economy was again in recession. In spite of this, Alpha was able to raise domestic sales by 9 per cent in comparison with 1990, mainly due to, lower production by its main competitors. Domestic prices in 1991 fell 16 per cent as a direct consequence of government price controls. As a result, Alpha reduced its domestic sales to 55 per cent with the remainder going to international consumers. As the Brazilian industrial production fell 4 per cent in 1992, steel domestic sales volume dropped 11 per cent. However, in 1993 domestic sales rose by 8 per cent, from 1.78mt to 1.93mt (Figure 6.7).

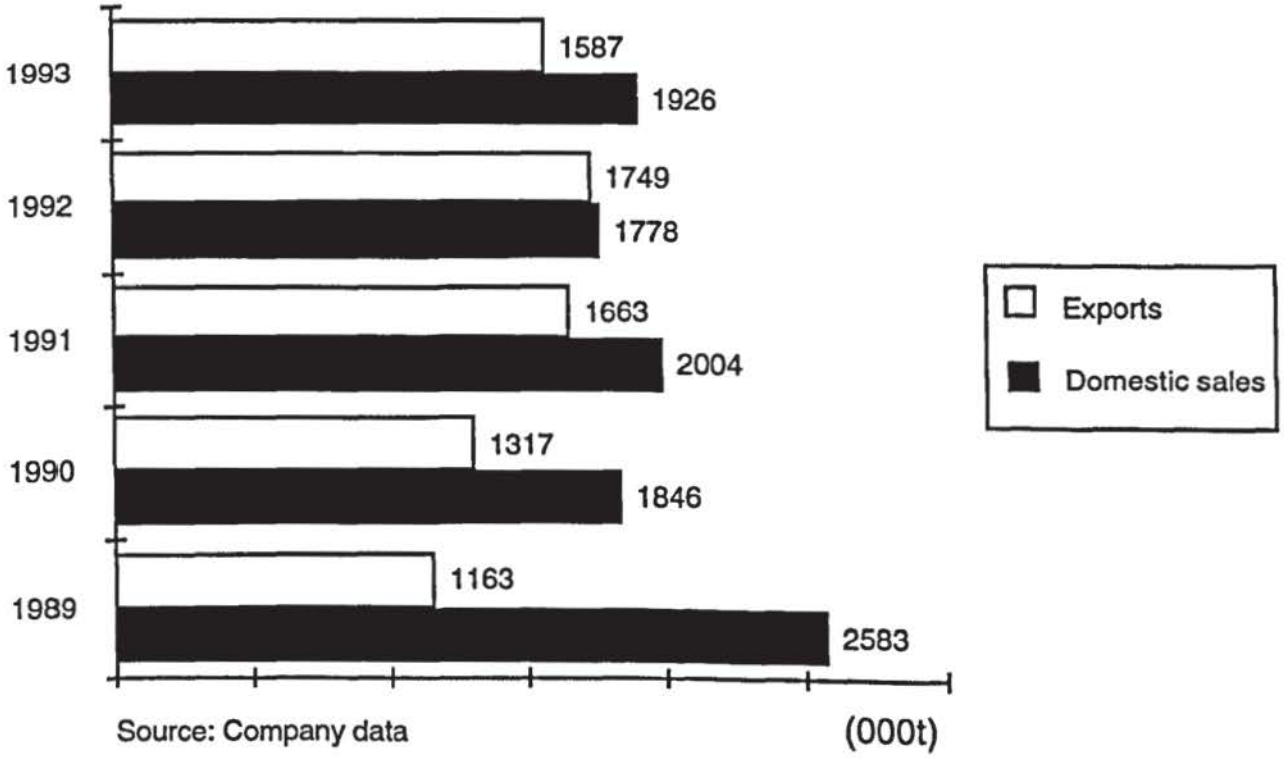
In general, when the domestic prices are higher than international ones, either because of removal of price controls or stronger demand, the company gives priority to domestic consumers instead of external ones. But, when demand is low in the domestic market and prices are low, the company turns its efforts towards exports. The international sales volume increased 26% in 1991, reaching 45% of the total sales. In 1992, sales rose 5% in comparison with 1991, and exports made up 50% of the total sales (Table 6.14).

Table 6.14 Sales breakdown by destination II
[tonnage(%) - revenue(%)]

Region	1989		1990		1991		1992	
* Domestic sales	69	74	58	69	55	61	50	65
* Exports	31	26	42	31	45	39	50	35
* Total	100	100	100	100	100	100	100	100

Source: Company data

Figure 6.7 Sales breakdown by destination



Domestic marketshare by sector

The company's overall domestic marketshare has remained about the same over the last five years. It has no difficulty in maintaining its share while remaining profitable because of the cost and technological capability advantages discussed earlier. Fluctuations in the domestic market share from one year to the next are mainly due to the shifts in the company's marketing efforts in response to changes in the relative attractiveness of domestic and

export markets. The total domestic market share increased from 46 per cent in 1990 to 48 per cent in 1991 (Table 6.15). In 1992 its market share fell to 45 per cent caused by an increase in output from its competitors. However, its share in the car industry rose substantially. It is worth remembering that car production demands cold-rolled steel, which is not only one of the highest value added products together with galvanized sheets but one of the most profitable.

Alpha has seen its share of the car manufacturing sector increasing year by year. In 1990, it had 51 per cent of this segment. The 1991 marketshare did not change. However, in 1993, there was an increase of 8 per cent, reaching 59 per cent. In 1994, its participation rose to 60 per cent. Improvement in the Brazilian economy, the related higher demand for new cars, and the establishment of a number of foreign car producers as manufacturers in Brazil means that there is strong growth of steel demand by the automotive sector. The growth in Alpha's share could be attributed to the technological capability developed before the privatisation and the change in strategic direction made possible by the privatisation and economic liberalisation.

Table 6.15 Alpha's domestic market share by market segments and types of products

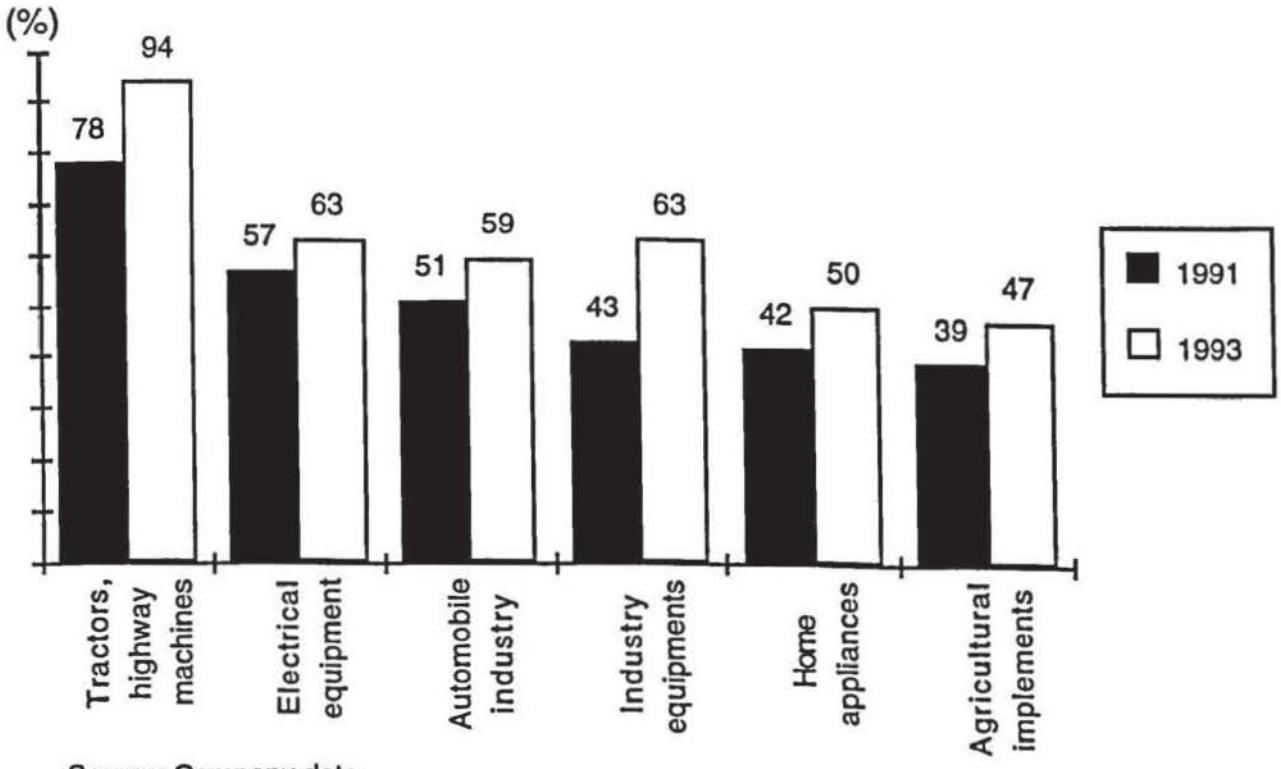
Sectors	1990 (%)	1991 (%)	1992 (%)	1993 (%)
* Carmakers	51	51	60	59
* Auto-parts	59	55	54	48
* Steel welded tubes (small diameter)	24	28	23	19
* Steel welded tubes (large diameter)	70	80	82	75
* Industrial equipment	57	43	64	63
* Packaging	32	64	64	41
* Civil construction	60	69	48	52
* Distributors	45	44	31	31
* Re-rolling	32	50	38	--
* Shipbuiding	33	40	60	47
* Marketshare average	46	48	45	--

Source: Company data, Baring Securities (1993)

There are sectors where the company has an overwhelming share. It is worth mentioning segments such as tractors and highway machines (94 per cent of the market in 1993), industrial equipment (63 per cent in 1993), steel welded tubes - large diameter (75 per cent in 1993), electrical equipment (57 per cent in 1991 to 63 per cent in 1993), and shipbuilding (40 per cent in 1991 to 47 per cent in 1993).

In terms of growth, industrial equipment increased 20 per cent from 1991 to 1993 (43 per cent to 63 per cent of the domestic market). Home appliances, in turn, grew 8 per cent from 1991 to 1993. Agricultural implements and civil construction are also sectors where the company has been able to raise its participation (Figure 6.8).

Figure 6.8 Domestic market share by selected sectors

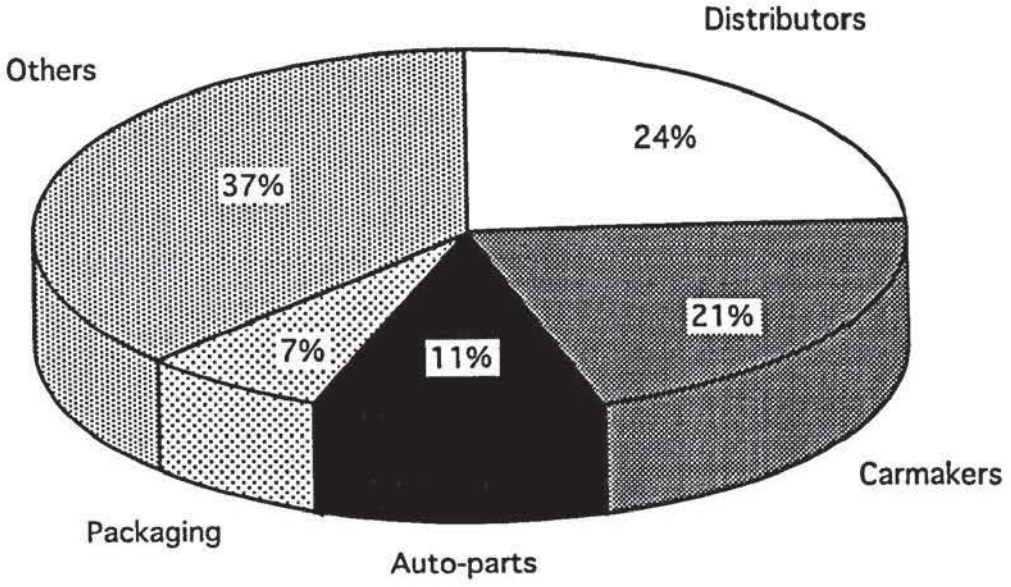


Source: Company data

Sales to the domestic market in 1992 reached 1.8 million tonnes. Distributors represented 21% (0.38mt), carmakers 16% (0.28mt), auto-parts 10% (0.17mt), packaging 10% (0.17mt), steel welded tubes 8% (0.15mt) and so on. The five sectors mentioned above were responsible for nearly two thirds of the sales in that year. In 1993, some variations occured, but the main buyers

continued the same (carmakers, auto-parts, packaging, distributors) (Figure 6.9 and Table 6.16).

Figure 6.9 Sales to domestic market by selected sectors (1993)



Source: Company dat

Table 6.16 Sales by sector in the domestic market

Sectors	1992		1993	
	(000t)	(%)	(000t)	(%)
* Carmakers	282	16	400	21
* Auto-parts	171	10	212	11
* Naval	45	3	34	2
* Steel welded tubes (large diameter)	151	8	66	3
* Steel welded tubes (small diameter)	85	5	79	4
* Packaging	172	10	138	7
* Home appliances	81	5	102	5
* Civil construction	78	4	83	4
* Electrical machinery and equipment	102	5	121	6
* Distributors	375	21	456	24
* Others	236	13	235	13
* Total	1778	100	1926	100

Source: Company data

The car manufacturing sector is by far the most important one for Alpha. It accounted for 21 per cent of the whole domestic sales in 1993 (1.9mt). In terms of tonnage, the company sold 0.29mt to carmakers in 1992. Yet, in 1993, this value reached 0.40mt. At the end of the first half of 1994, sales reached 0.20mt (Table 6.17).

According to Alpha's Chief Executive, the good financial results of 1994 were due to an increase in domestic demand, and especially car industry demand for steel. Other, main reasons were price increases, rising exports to Mercosul, and continue cost-cutting.

Another way to evaluate sales to the domestic market is comparing the first half of each year. The first half of 1992 shows that the main consumers were carmakers (13%), followed by distributors (18%), steel welded tube - large diameter (11%), auto-parts (9%), and others (Table 6.18).

Table 6.17 Domestic marketshare by sectors (1st half of 1994)

Sectors	1994 (%)
* Carmakers	60
* Auto-parts	51
* Naval	70
* Electrical machinery and equipment	63
* Home appliances	63
* Steel welded tubes (large diameter)	64
* Steel welded tubes (small diameter)	18
* Packaging	45
* Civil construction	68
* Distributors	32

Source: Company data

It is interesting to observe that during the first half of the following years of 1993 and 1994, the situation stayed the same. The main variation was in terms of volume. The car industry stood for 21% of the company's sales in 1993 (0.20mt) first half; the same figure when taking into account the whole year. The participation of the car industry, in the first half of 1994, was down to 18% in relative terms not in tonnage (0.20mt). This happened due to an increase in domestic sales (1.1mt) and an augmentation in sales to other sectors. Figures from 1993 and 1994 suggest that sales to distributors represented almost 25% of the whole domestic market, an increase of almost 7% in relation to 1992. It can possibly be explained by the economic conditions at that time. 1994 was a very good year for the Brazilian economy. The GDP rose nearly 5%. Sales to auto-parts increased from 9% in 1992 to 12% in 1994 during the first semester. Sales for the others sectors did not have impressive changes in terms of tonnage. It is worth remembering that in volume terms around 75% of domestic sales are made directly to end-users and the rest go to low-volume customers through local steel stockholders.

Table 6.18 Sales by sector to the domestic market (1st half)

Sector	1992		1993		1994	
	(000t)	(%)	(000t)	(%)	(000t)	(%)
* Carmakers	115	13	201	21	203	18
* Auto-parts	77	9	97	10	135	12
* Naval	20	2	21	2	13	1
* Electrical machinery and equipment	79	9	27	3	70	6
* Home appliances	50	6	41	4	44	4
* Steel welded tube (large diameter)	96	11	73	8	70	6
* Steel welded tubes (small diameter)	39	5	50	5	60	5
* Packaging	39	5	39	4	52	5
* Civil construction	59	7	59	6	64	6
* Distributors	157	18	222	23	263	24
* Others	122	14	116	12	137	12
* Total	853	100	946	100	1111	100

Source: Company data

6.7.4. Exports

6.7.4.1. Exports by country

As noted above, the level of Alpha's exports is determined by the demand conditions and product prices in Brazil and foreign markets. Overall, profits margins on exports are not as high as in the domestic market. The reasons for that are:

(a) the more intense competition in foreign markets from domestic and other foreign producers;

(b) the higher costs of transporting steel, especially to the European and Far Eastern markets, and

(c) the relatively low value added products exported (for example, the high value added cold-rolled and galvanised sheets are sold almost entirely in the domestic market).

The USA was the main external consumer throughout the 1980s. Sales rose from 80,596 tonnes in 1980 to 256,907 tonnes in 1983. After that there was a decline until 1988, when sales started to increase again. On average, during the last decade US sales represented 25 per cent of total exports. This figure was 16 per cent in 1989. There was an increase of 4 per cent in 1990, followed by two years of decline in 1991 and 1992 (16 per cent and 13 per cent respectively). Exports to the USA were reduced mainly due to import tariffs (30 per cent on average) imposed by the American Congress (Table 6.19 and Figure 6.10).

Table 6.19 The company's exports by country

Country (%)	1989 (%)	1990 (%)	1991 (%)	1992
*US	16	20	16	13
* Japan	14	12	15	5
* Taiwan	4	11	20	16
* Thailand	1	11	6	18
* Argentina	3	1	6	13
* Malaysia	1	4	5	5
* Others	61	41	32	30
* Total	100	100	100	100

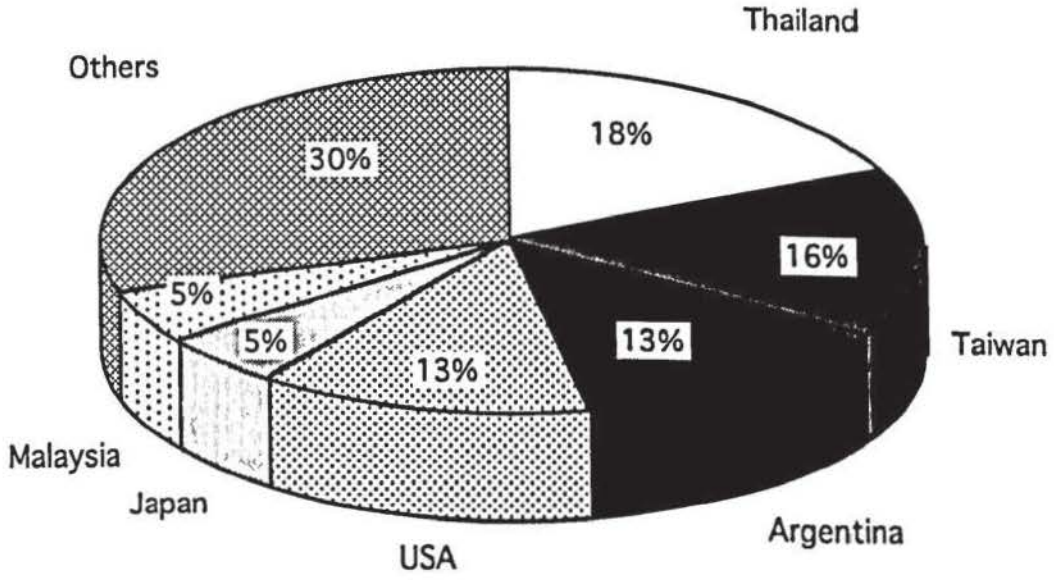
Source: Company data

In order to compensate for the fall in exports to the USA, the company increased efforts to find new markets in South East Asia and South America. Sales to Taiwan, Thailand, Malaysia and more recently China have been growing steadily. The Taiwan marketshare was just 4 per cent in 1989. Yet in 1991 it stood for 20 per cent. The tonnage sold to Taiwan in 1992 was 0.28 million tonnes, only Thailand bought more than that.

In spite of all the obstacles, exports to the US had an impressive recovery in 1993; over 0.37mt were sold. An increase of 69% by comparison with 1992 (0.22mt). China's performance in 1993 was breathtaking. It bought almost 5.5 times more in 1993 than in 1992. Other countries had their share reduced due to much stiffer competition.

Argentina has become an increasingly important customer since the formation of Mercosul in 1991. Sales in 1992 accounted for 13 per cent of total exports, about 0.22mt. This figure dropped sharply to 0.13mt in 1993 due to internal economic difficulties in Argentina (Figure 6.11).

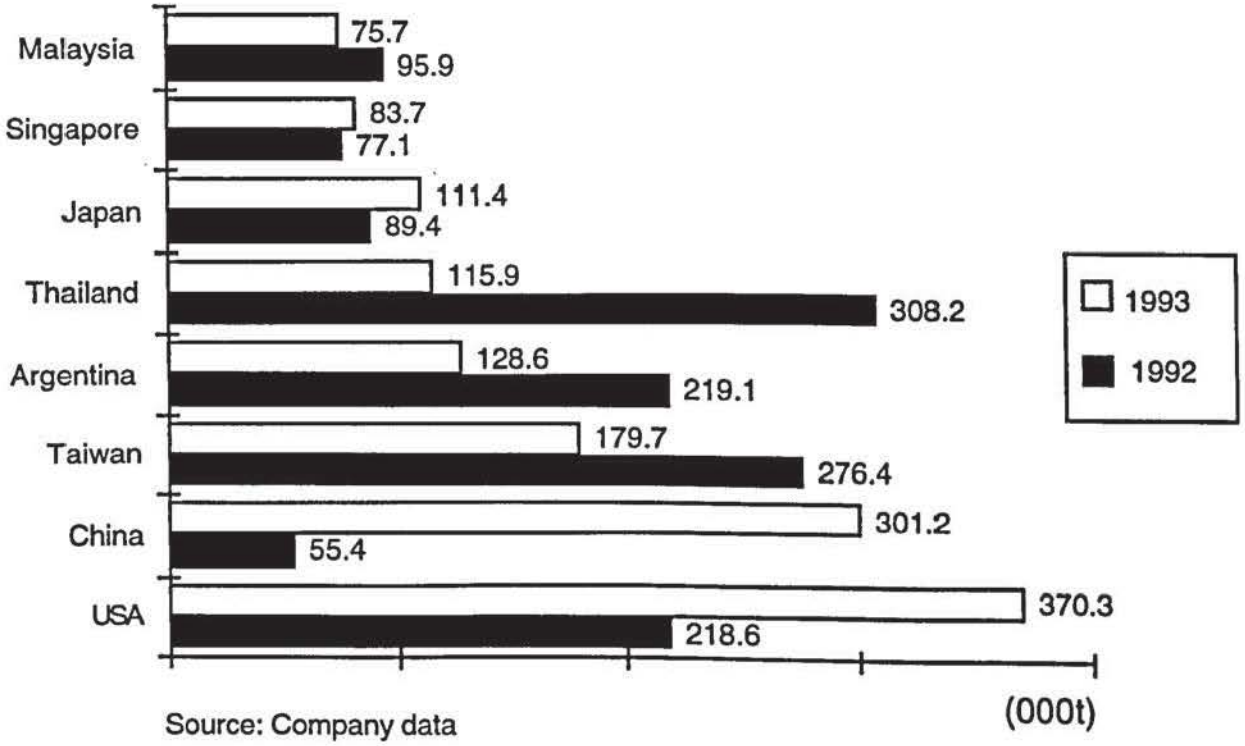
Figure 6.10 The Company's exports by country of destination (1993)



Source: Company dat.

In order to increase its services, operations and sales in the USA as well as in other areas of the world, the company has established subsidiaries and set up offices. This has allowed a better interrelationship with customers and improvement of prices and terms.

Figure 6.11 Exports by selected countries of destination

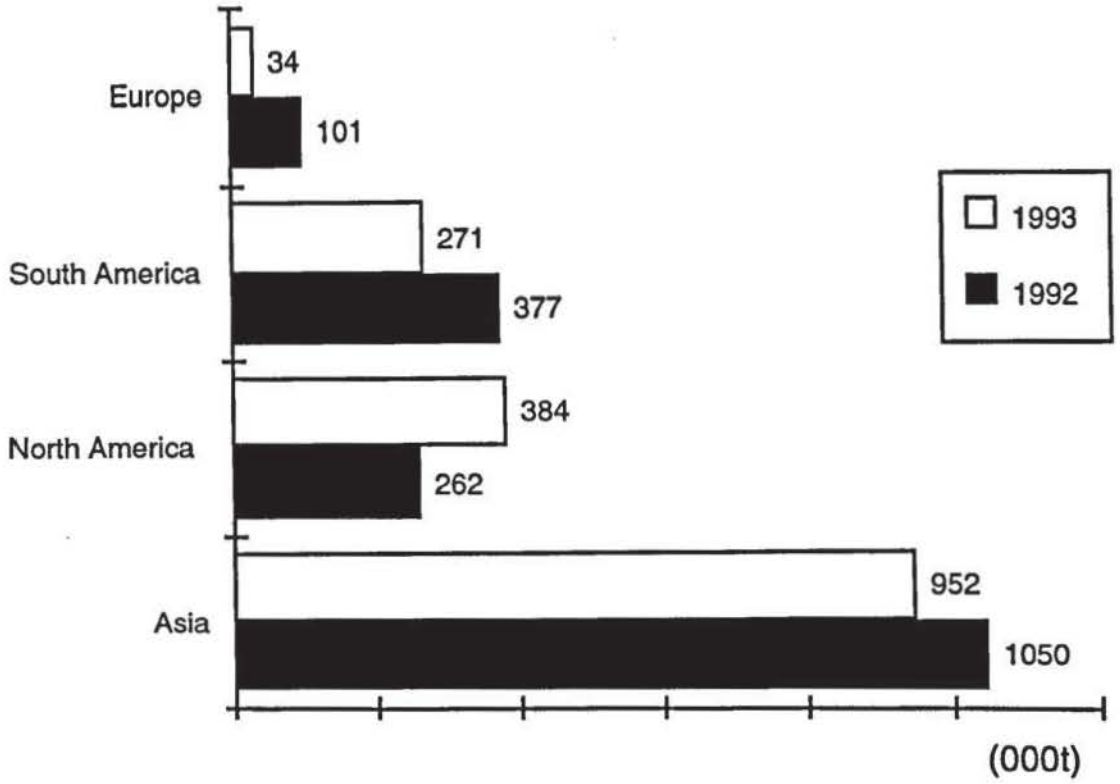


Source: Company data

6.7.4.2. Exports by continent

Exports to Asia accounted for 59% of the total in 1992. Coming in second place is South America with 21%, in third place North America with 15% and, finally, Europe with only 5%. However, North America raised its participation in 1993, reaching 23% of total sales. Europe again was a dull figure in 1993, reducing its participation from 5% to 2% (Figure 6.12). Main points about the relative importance of countries or in this case continents recognising that there are fluctuations from one year to the next - reasons have been discussed above.

Figure 6.12 Company's exports by continent of destination

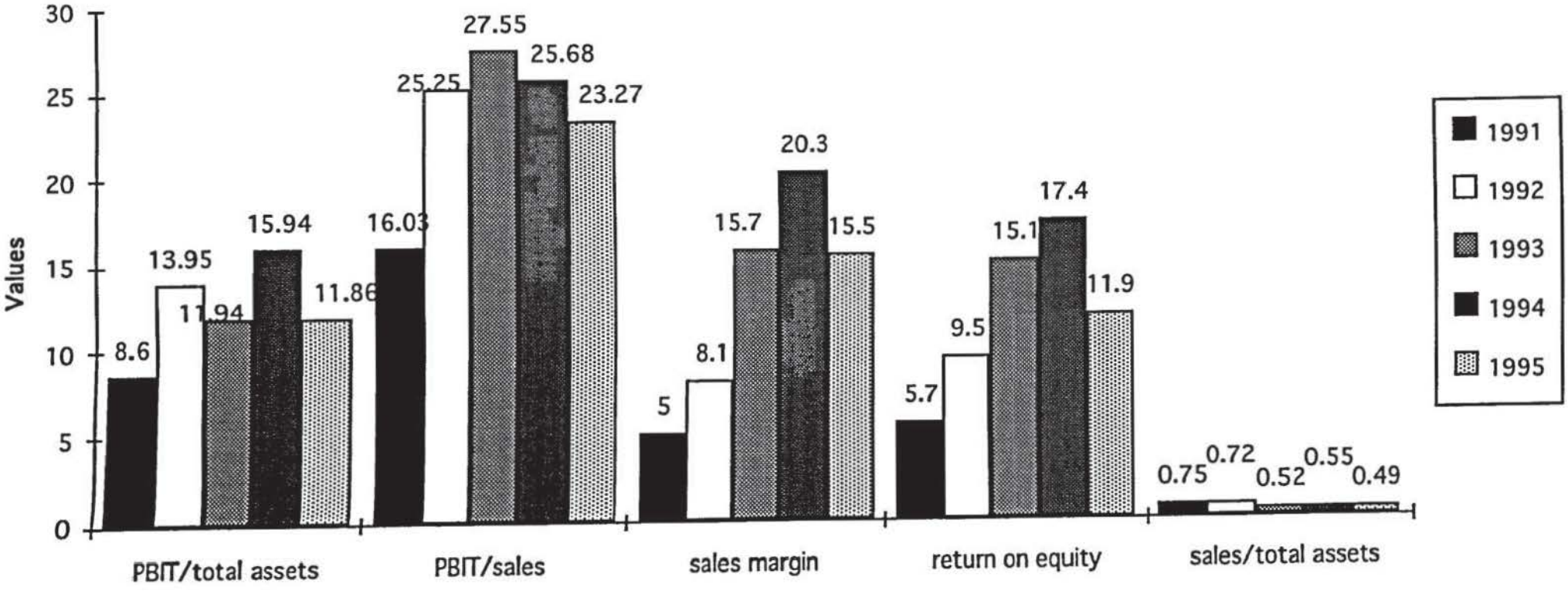


Source: Company data

6.7.5. Profitability and asset turnover ratios

Profitability is among the most important indicators of the "performance" of an enterprise. It represents generation of value for the owners of the enterprise and makes it possible for it to survive and grow. Following the company analysis framework, section 6.7 examines the implications for company profitability of the management and competitiveness and productivity components and the output and sales aspects of the performance component. Figure 6.13 sets out some of Alpha's main profitability and asset utilisation ratios. PBIT/total assets ratio reflects the profits generated before tax on all the assets used (fixed assets and current assets). Alpha's PBIT/total assets ratio has been uneven over the last five years mainly due to changes in profits before interest and taxation. Despite this the average ratio has been over 10 per cent, one of the best in the Brazilian steel industry. PBIT/sales ratio shows the gross profit margin on sales. The figures are quite impressive. The average ratio has been about 25 per cent. Again, one of the best results in the steel industry.

Figure 6.13 Profitability and asset turnover ratios



Source: Exame Melhores e Maiores (various issues) and company's balance sheets

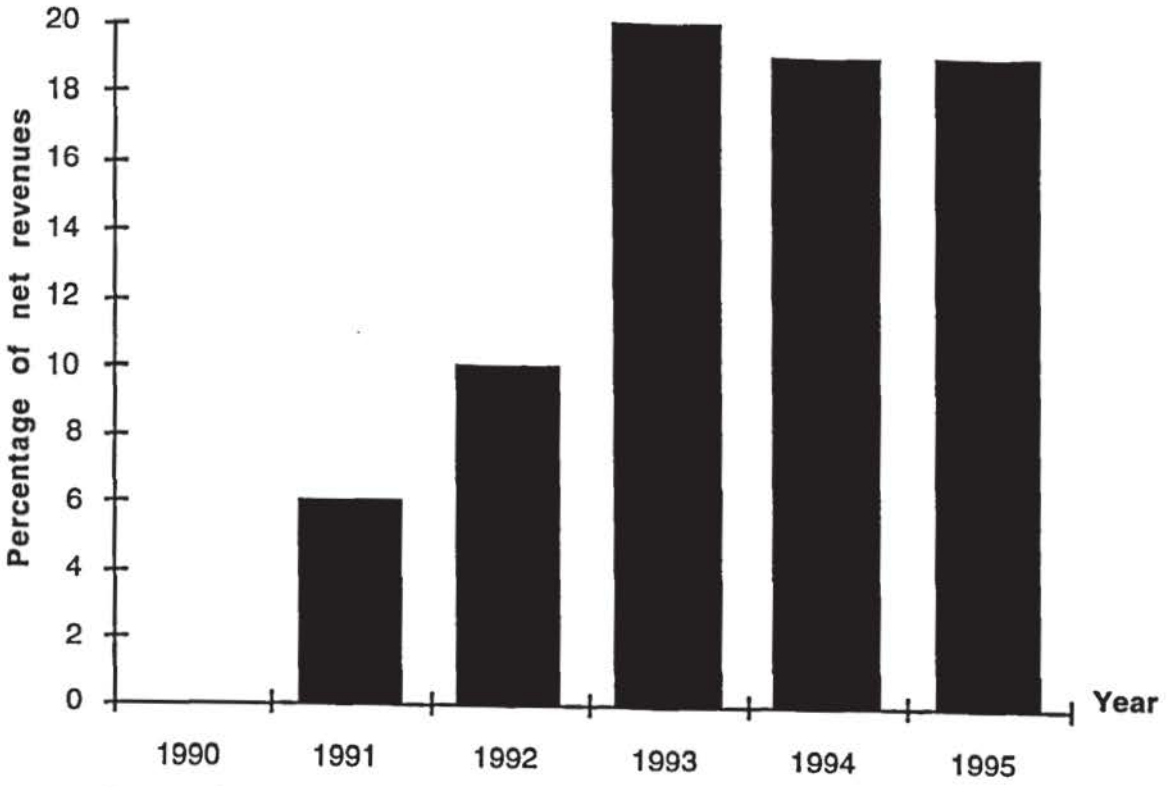
The sales margin (net profit over sales) has increased steadily since 1991. In 1995, it reached 15.5 per cent down from 20.3 per cent in 1994 due to a fall in net profits. Despite the fluctuations, these figures represent an impressive performance. The company has been one of the most profitable in the steel industry over the last five years. The primary reasons should be found in the restructuring programme, entrepreneurial strategy, a better mix of higher value added products, and improvement of the economy after the deep 1990-92 recession. Return on equity (net profit over stockholders equity) presents a similar patterns to sales margin. It has been growing constantly over the years, except in 1995 when it dropped to 11.9 per cent. Asset turnover (sales/total assets) shows how many times in a year a company's assets have been turned over. Alpha's asset turnover has decreased since 1991. Over time the company will need to take actions to stop the trend as this activity ratio is one of the most important ratios that shows whether a company has been able to generate profits or not.

6.7.6. Profits and Earnings per share (EPS)

Figure 6.14 sets out the profit performance over a six years period. The last three years results have been encouraging when compared with the year of 1990. From losses in 1990, a year of low demand and maintenance work, the company managed to increase profits steadily since then. In 1995, the company's profit reached US$336mi, representing almost 20% of net revenues. It appears that privatisation, deregulation, increasing demand, better relationship with customers, price liberalization policy, all of them, have played a part to improve profits.

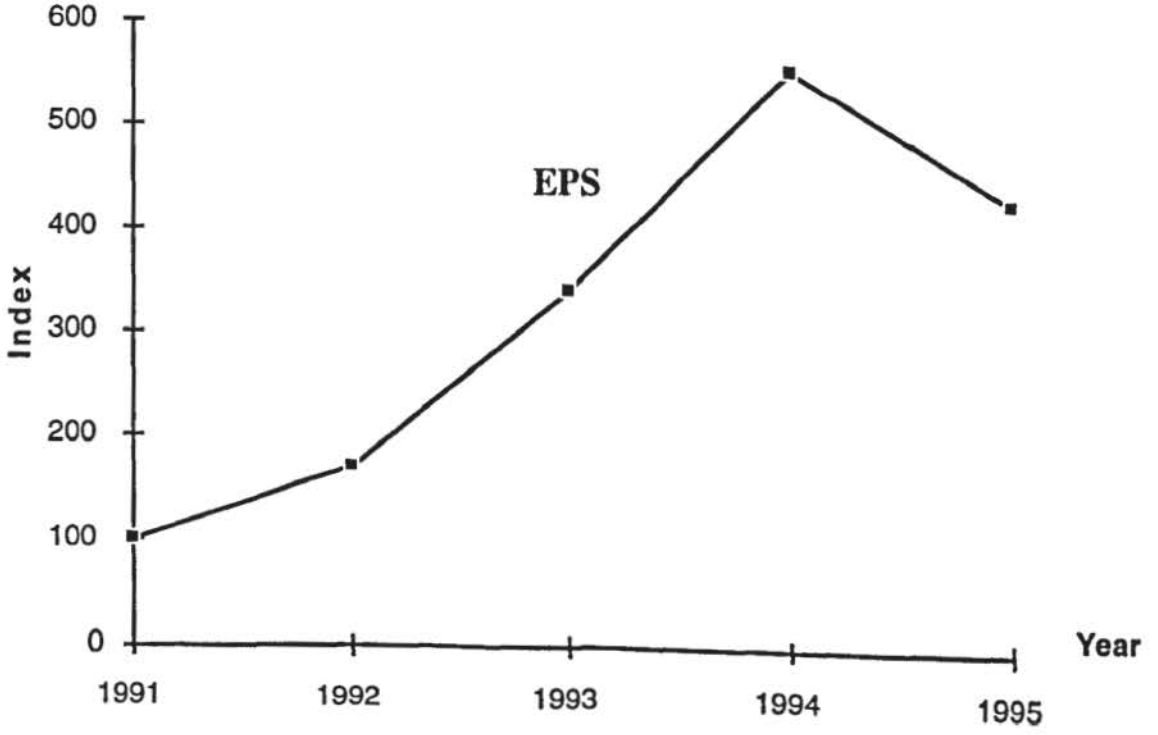
Figure 6.15 displays Alpha's earnings per share. The chart shows that the company has been increasing the EPS since the beginning of 1990's. It seems there is a clear policy to favour the company's shareholders. For example, EPS grew more than fivefold during the 1991-1994 period.

Figure 6.14 Alpha's net profit (%)



Source: Company data

Figure 6.15 Earnings per share (%)



Source: Company data
* Index, 1991-95 (1991=100): EPS, earnings per share

6.7.7. Value added

Value added is defined as being the difference between the selling price and the cost of bought-in materials, components and services. In other words, as put by Krugman (1994:37), "value added of a firm is the dollar value of its sales, minus the dollar value of the inputs it purchases from other firms." Porter (1985:39) points out some of the flaws associated with the value added concept, such as the improper distinction between raw material and the rest of inputs used by a company and the lack of emphasis on the relationship of a company and its suppliers which can diminish cost or increase differentiation. As far as this research is concerned, the value added concept is defined as being the difference between gross revenues and cost of products and services.

Figure 6.16 presents Alpha's value added over a six-year period (data available for the researcher). The cost of products and services has varied between fifty three and sixty five percent of gross revenues figures over time. In its turn, the value added results have shown a small variation between forty three and forty seven percent of gross revenues, except in 1991, when it dropped to thirty five percent of gross revenues due to an increase in cost of products. To a certain extent, value added reflects what it is happening with profits over the same period. However, one cannot argue that privatisation has been the main factor affecting value added as this is not clear enough to be positive about.

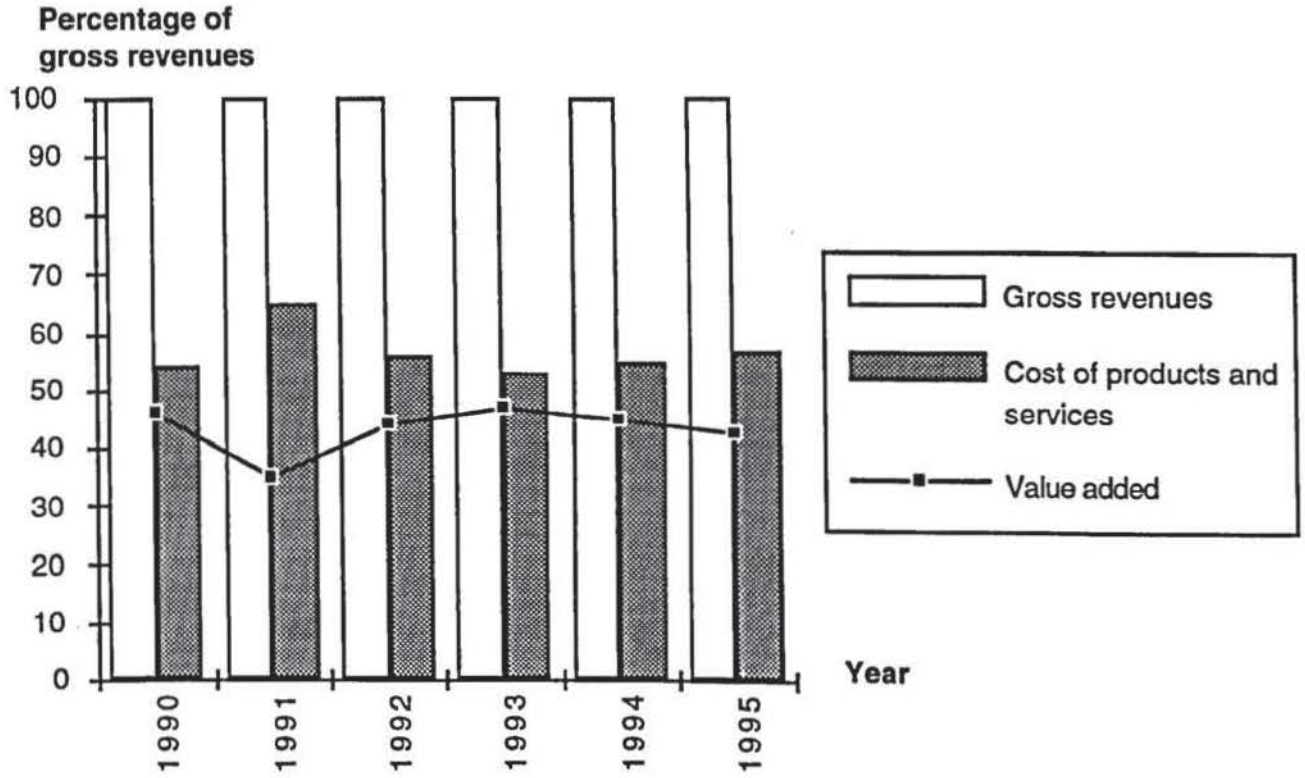
6.8. Conclusions

Privatisation played an important role in disentangling the company from government constraints. Many aspects such as strategic planning, corporate development, procurement, finance, human resources, decision-making process, have been affected by the company's new approach.

However, it is important not to be impressed and blinded by the results after 1991, when privatisation happened. The issue of state versus private ownership should not obscure some fundamental facts. First of all, Alpha has been able to display quite a successful performance throughout most of its entire existence. With the continuing assistance of its Japanese partner, the company managed

to create technological capability and an internal culture that stresses the values of technical competence, teamwork, qualification and training, responsibility and autonomy, and managerial expertise. Most employees are proud to working for Alpha. They feel that the company cares for them, in a broad sense.

Figure 6.16 Alpha's value added



Source: Company data

As a matter of fact, Brazilian public companies on the whole have been subject to considerable political interference since the outset of the dictatorship in 1964 until the resurgence of democracy in 1985. Prominent politicians appointed their followers as key members of the boards of major state-owned enterprises. Regrettably, in general, politicians and their appointees were not very much concerned about company well-being, but about how they use their positions to keep themselves in power, boost their profile within their constituencies, and even make personal financial gains. The available evidence suggests that before privatisation the company was able to limit undesirable political interference and keep a highly professional management team in charge of the entire

business. One possible reason for this is the continuing involvement of Nippon Steel.

The case study demonstrates that privatisation is not by any means the only or even the most important explanation of Alpha's performance and efficiency. Alpha had a good record of management, technological capability and productivity before 1991. It was considered one of the best Brazilian public companies with a high reputation. After 1991, results have been consistent and well received by the business community. However, besides privatisation there are other reasons that might justify the company's improved results. Among them are the recovery of the Brazilian economy from 1993 onwards, increasing car production in Brazil, the lifting of internal price controls by the government, increase in price of steel in international markets in 1994, stable prices of raw material, creation of the South American common market (Mercosul) that has allowed a steep increase in sales to Argentina.

Labour productivity has been increasing steadily since 1990, when productivity reached 300 m.ton/man-year. In 1994, productivity rose to 446 m.ton/man/year, a significant increase by any standard. The main reason for this improvement is the restructuring programme, bringing about a leaner and sharper organisation, with a smaller number of employees, reduced layers of hierarchy, and reorganization of work processes.

Profitability, while fluctuating from one year to the next, remained at a relatively high level since 1991.

Growth in market share, sales, and exports are some of the indicators that one can consider to evaluate the health of a company. For example, Alpha gradually increased its participation in the car industry from 51% in 1991 to 59% in 1993. The most significant aspect of this lies in the fact that the car manufacturing sector demands higher value added products which are the most profitable. The carmakers' purchases stand for almost half of Alpha's income. Net income rose from US$58.9 million in 1991 to US$239.4 million in 1993, amid 1994 values.

Technology has played a very important role in Alpha since its foundation. A healthy relationship between a Japanese steelmaker and Alpha was established in the 50's. Japanese technology transfer started in 1957. Management as well as technology is regarded by

most specialists as an important component of competitiveness. Alpha has recently attempted to enhance its managerial capabilities through hiring the services of major international consultancy companies, a much closer link with Nippon Steel and increasing the training of its employees. It seems that, at the company level, managerial agency has the greater influence over an improved performance and competitiveness.

Alpha is deemed to have one of the best workforces in the Brazilian steel industry. It is considered well-trained and qualified by its competitors and other companies in general, according to interviews conducted by this researcher. For 96% of Alpha's employees, it is the only company they have ever worked for (Exame, 30 August 1995). One of the reasons put forward by the company's management to explain this loyalty lies in its 'Japanese culture' inherited by its close connections with Nippon Steel throughout its existence. Discipline, loyalty, teamwork, respect for hierarchy are some of the characteristics that the company's employees assimilated as a result of its partnership with the Japanese.

The role of government is in general regarded as an important factor that affects competitiveness. It is accepted that the government's role should be mainly restricted to creating an environment which enables companies to thrive and prosper in order to compete at home and abroad. After privatisation, Alpha was freed of government constraints that hampered the undertaking of proper actions related to strategy, decision-making, personnel, finance, procurement, sales, and so on. For example, as a state-owned enterprise Alpha had to follow through a group of about 100 government decrees and directives merely to sell/buy goods and services. After 1991, as a private enterprise, it was able to establish major technological partnerships and alliances, to create subsidiaries, and to undertake a programme of diversification towards new business opportunities.

7. COMPANY BETA

7.1. Introduction

This chapter examines Beta within the company analysis framework developed in Chapter 4 (Figure 4.2). However, the very substantial differences in the origin and characteristics of the company and data availability imply that this case study cannot be precisely evaluated in the same lines as the examination of Alpha in the chapter 6.

Beta was the last Brazilian steel maker to be privatised. Since its foundation in 1978 the company has been through some difficulties. To begin with, due to the impact of the oil crisis on the Brazilian economy, public financial resources were scarce and the steelmill construction schedule was delayed by about five years. Beta began its production in February 1985 with completion of the second stage in July 1986. The last stage was suspended in July 1990 because of higher financial costs, growing operational costs, fall of steel prices in international markets, unfavourable exchange rates and government domestic price controls. Beta made a loss in 1990 of more than US$230m. After 1990, the company has returned to modest profitability.

Beta as a private company is facing new challenges and opportunities in the domestic and international markets but now without government protection or restrictions imposed by government controls.

7.2. Company background

Beta is a Brazilian steel mill created by the Government in the 1970s in the state of Minas Gerais. The company is located in the Alto Paraopeba, embodying the areas of the Ouro Branco and Congonhas city councils. Beta is strategically situated in terms of access to main Brazilian industrial and consumer centres and exporting ports. It is located close to one of the richest iron ore mines as well as to areas of limestone, dolomite and dunite.

Construction was started in November 1976. Due to the oil crisis that hit the Brazilian economy at that time, financial resources allocated to the project by the government began to become scarce

and then became erratic. This had a major impact on the construction schedule. Between 1978 and 1985, construction work was delayed six times. After that, the project was divided into three phases:

- Phase I: finished in February 1985, when coking plant and semi-finished products rolling mills were ready to produce billets and blooms, through the acquisition of steel ingots from other Brazilian steelmills;
- Phase II: finished in July 1986, when raw material yards, sinter plant, calcination plant, blast furnace, and steel-making plant were ready, allowing the integration of the whole production up to the rolling mills stage, and
- Phase III: comprising of rolling mill units for medium shapes and bars for heavy shapes and rail. Phase III was suspended indefinitely in July 1990, in spite of 75% of the construction work of the whole phase having been completed.

The layout of the steelmill allows an expansion of production capacity to up to 10 million tonnes a year, without disrupting production. By 1993, the company's production had reached 2.4m tonnes of molten steel, with a nominal capacity of 2m tonnes, because of improvements and adaptations in machines and equipments.

The main production units are:

(a) Coal storage made up of two yards of 96,000 square meter area;
(b) Primary yards chosen to store iron ores and miscellaneous materials;
(c) Blending yards fitted with two stackers;
(d) Coking plant with two 53-oven batteries, having an inside volume of 39.6 cubic meters;
(e) Coke yard to meet the requirements of emergency storage;
(f) Sinter plant of Dwight Lloyd type;
(g) 2 Sinter yards operate with a single stacker-reclaimer unit;
(h) By-products plant for recovery of chemical by-products and pollution control;
(i) Blast furnace plant with a production capacity of 2m tonnes/year;
(j) Steel-making plant with two LD-type oxygen converters;
(k) Calcination plant;

(l) Semi-products rolling mills;
(m) Energy system.

Beta has been in the forefront of preservation of the environment since its implementation in Ouro Branco. It was built up with installed pollution control equipment and systems. According to the company, among the environmental control actions developed so far are:

- identification of pollution sources and relevant effluents;
- continuous monitoring of water, air and soil throughout the area of the steelworks;
- optimization of pollution control systems;
- installation of a programme for management of wastes and by-products;
- technical and scientific agreements with the Federal University of Minas Gerais (UFMG) and the Federal University of Vicosa (UFV);
- in 1992, the "Environment as your Client" programme was set up in the company and the community.

7.3. Privatisation

Beta was the last Brazilian state steelmaker to be privatised. On September 10, 1993, through an auction held at Belo Horizonte Stock Exchange, the company was privatised. The consortium led by GMJ (Grupo Mendes Junior) with the Clube de Participacao Acionaria dos Empregados (Employees' association), Acos Villares, Banco de Credito Real de Minas Gerais, Vale do Rio Doce Navegacao, Grupo Economico and Banco de Credito Nacional became the main shareholders with the right to have their representatives in the boardroom. The consortium, till the end of 1994, held nearly 90 per cent of the total capital of the company.

Alpha and Beta had similar problems during their auctions, the difference being scale. To begin with, both companies had their auction dates postponed. Beta's auction was planned, initially, to take place on August 25, but the Federal Government Controller's Office (TCU) required more time to look through the technical aspects of the privatisation process. Originally, the TCU auditors thought the minimum price of US$364.4m too low for a company with recently

installed capacity and a promising future. Eventually, the auction took place in September. The auction lasted almost five hours and 38 brokerage houses bid at the auction, representing 101 private investors, six foreign players and six public investors.

When GMJ decided to bid for Beta it had the support of the company's Employees' Association, who until 1995, held 20 per cent of the Beta's capital. Thus, the support of the Employees Association was fundamental for GMJ. The latter had guaranteed the job security of as many employees as possible with their deal with GMJ. The employees who are now involved in the management of the company wanted to be sure that they would be consulted on a day-to-day basis on management decisions, including decisions about dismissals.

The acquisition of Beta by GMJ would allow it to become an integrated company and be much more able to compete against its rivals, Companhia Belgo Mineira and Grupo Gerdau, in the production of quality long steel. GMJ (a private enterprise) and Beta were established in the 1980s with the idea that they should complement each other. Before the privatisation, more than 40 per cent of Beta's billets production was bought by GMJ, to compensate for its unequal product-mix.

Before privatisation, Beta's gross debt was estimated to be US$380m, US$170m being owed to Cia Siderurgica de Tubarao, Usiminas and Doce Nave, for the sale of part of the port at Praia Mole. Of the US$210m of net debt, US$50m is short-term. Beta produced 2.4m tonnes of steel in 1993, more than 10 per cent above its nominal capacity. In September 1993, 4,658 persons were employed by Beta and its organisational structure had 149 functional units.

7.4. Applying the company analysis framework

The aim of this section is to examine Beta within the company analysis framework (Figure 4.2) taking into account its three main components: Management, Competitiveness/Productivity and Performance. The three components depict distinct stages in a company process. Management enables the elements of a company to improve productivity and to enhance performance. Productivity makes performance sustainable and foster it. Performance helps a company to achieve its goals.

7.5. Management

Management is deemed to be a key element of any successful undertaking. Having the right people, provided with vision, determination, knowing why, where, when, and how to go, being able to change and innovate as circumstances require is an invaluable asset (HMSO, 1994). Successful companies are not run by weak and sloppy management. Conversely, successful companies are a mirror of a strong and competent management. In other words, it means a management able to act promptly, responding to different demands and needs. Being pro-active and innovative as much as possible, ie, acting and changing in a manner so that available options are not dictated entirely by chance or facts outside the control of the company. It is wise to act before things get worse or rather take action even if the company seems to be in a good shape as change is not always easy and welcome when things seem to be running well. To achieve that, a management is required to show leadership and ability to work as a team, drawing commitment from all those involved. So managerial agency is very important to any successful enterprise.

There must be commitment to continuous learning through courses, seminars, conferences and all kinds of contacts with individuals both within and outside the company. In addition to that, entrepreneurship has been another demanded ability from employees. Then, there is a growing awareness and change of attitudes from most of the stakeholders: customers, suppliers, shareholders, government, green movement, animal protection movement, and so forth. The environment in which a company of the 1990s develops its business is turning out to be less amicable towards those companies that have failed to comply with minimum standards set by its main stakeholders. So a flexible and conscious management is required to cope with all that.

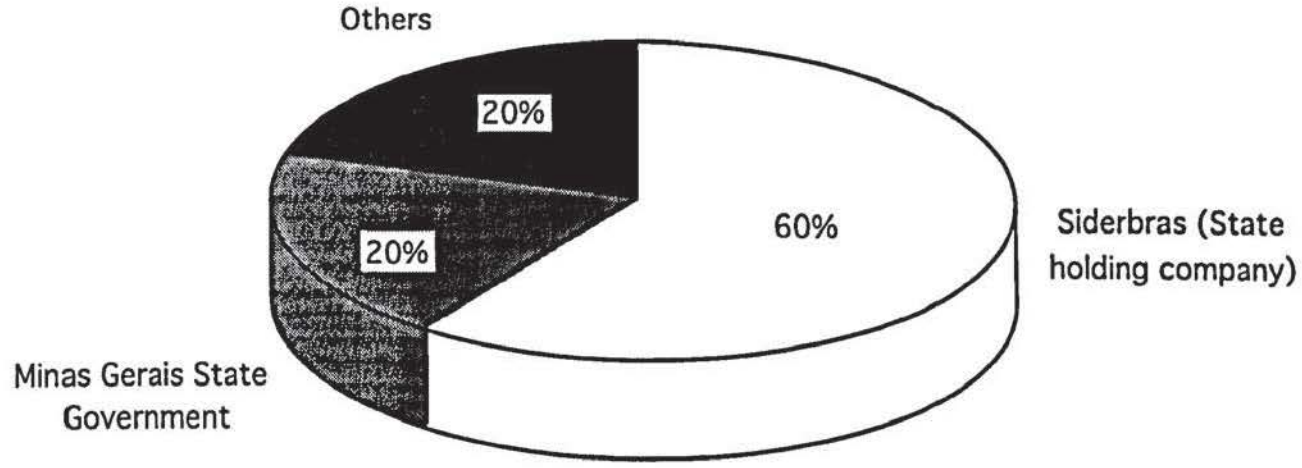
Management can be crucial to the success or failure of any undertaking. As mentioned in Chapter 3, 'successful companies are led by people with a clear vision...objectives...recognition of changes and innovation' (HMSO, 1994). As a state-owned enterprise, Beta did not have an outstanding record in management due to too much

political interference in its business. It had politicians appointed by the Government such as, for instance, a president and directors who did not have the relevant experience and capabilities to run a manufacturing enterprise, let alone a steel company. Further, their major motivations and objectives were not focused on improving Beta's performance and profitability. After privatisation, the need for a much more professional team to steer the company's business was very high on the shareholders' agenda.

7.5.1. Ownership

Beta's main shareholders before privatisation were SIDERBRAS (the state holding company) with 60 per cent of shares, Minas Gerais State Government with 20 per cent, and others with 20 per cent (Figure 7.1)

Figure 7.1 Major Shareholders before privatisation



Source: Company dat

After privatisation, as stated above, most of the voting shares went to Brazilian groups, the biggest shareholder until the end of 1994 being GMJ with 31.50 per cent of the common shares and 30.65 per cent of the preferred shares (Table 7.1). Other big shareholders are the Employees' Association with 20 per cent of common shares, Banco Economico (10 per cent of common shares), Banco Credito Nacional (10 per cent of common shares), Acos Villares SA (6.24 per cent of common shares), and Vale do Rio Doce Navegacao - Docenave (4.97 per cent of common shares). After the change in ownership, a great number of financial institutions became shareholders.

7.5.2. Governance

Under state ownership, all steel enterprises were obliged to comply with a series of decrees and directives, without taking into account different realities, cultures, performance, and efficiency. This approach has proved damaging for a number of companies since their distinguishing characteristics were not always considered by SIDERBRAS. The main objective was to reach an average result that would suit the majority of public steel companies.

After privatisation, Beta has gained greater freedom, flexibility and has been able to carry out a number of actions such as downsizing, reduction of red tape, changes in procurement and marketing areas. The liberalization of the economy, the lifting of restrictions to operate fully, the growing demand for its products, are some of the facts that have allowed the company to achieve some of its objectives.

7.5.3. Autonomy and incentives

Privatisation has freed the company to establish its aims without government interference. Greater autonomy has affected planning, corporate development, procurement, customer services, product development, financial transactions, commercial and marketing, and human resources areas.

The decision-making process is quicker and much simpler. There is greater customer care and more emphasis on search for new markets. There is greater freedom to develop a much deeper

relationship with banks and foreign organizations. More flexibility to contract/dismiss people as well as to define policies on wages and salaries.

For the employees who continued to be employed, the change in ownership brought, mainly, participation in shareholding and incentives in the form of performance-related pay. The reduction in the workforce has clearly had negative effects for former employees. The Employees' Association and the company management have collaborated to help former employees to establish their own firms to supply Beta (e.g. catering, cleaning).

Table 7.1 Major shareholders after privatisation

Shareholders	% of common	% of preferred	% of total
* Cia Mineira de Participacoes (Grupo Mendes Junior)	31.50	30.63	31.50
* Acominas's Employees Invest. Club-CEA	20.00	-----	20.00
* Banco Economico	10.00	9.73	10.00
* Banco Credito Nacional	10.00	9.72	10.00
* Acos Villares SA	6.24	6.07	6.24
* Vale Rio Doce Navegacao Docenave	4.97	4.83	4.97
* Banco Real	3.80	3.69	3.80
* Bemge	4.27	4.15	4.27
* Credireal	3.62	3.52	3.62
* Grupo Bradesco	2.57	2.50	2.57
* Others	3.05	25.16	3.05
* Total	100.00	100.00	100.00

Source: Company data on 30 June 1994

7.5.5. Organizational structure

Beta carried out major changes both before and after privatisation. Actions have been taken to rescue the company from problems inherited since its beginning: oversized projects, lack of public money to undertake the timetable previously agreed, political interference, overmanning, mismanagement, low productivity and efficiency.

A great number of measures were taken to improve the company's profile. As a result, action programmes were set up, such as cost reduction, rationalization of services, renegotiation of contracts, reduction of stocks, rationalization of port services, and better deals were made for the purchase of raw materials. The concept of Total Quality Management became embedded within the company, through a series of seminars and courses and active involvement of the workforce.

Figure 7.2 shows the organizational structure changes that took place from the beginning of 1990 because of postponement of Phase III and the need to prepare the company for privatisation. Over a four-year period, more than 60 per cent of functional units were eliminated, including directorates, superintendences, departments, divisions and sections. The downsizing scale was quite significant. In April 1990, the company had 278 functional units (6 directorates, 15 superintendences, 48 departments, 107 divisions and 102 sections). By the middle of 1992, a major downsizing was implemented, affecting many different units. Superintendence of Engineering was left without 14 functional units. Data Processing was reduced by 6 units while Human Resources Management had 5 units scrapped. Administrative units were reduced by 5 and the Commercial Directorate had 2 units eliminated. Several of the Industrial Directorate's units disappeared.

In October 1993, one month after privatisation, Beta had its structural organization reduced to 117 units, 58 per cent smaller than in April 1990. In April 1994, the number of units had fallen to 107, 62 per cent less than four years before. The organizational structure was constituted of 6 directorates, 21 superintendences, 46 departments, 34 divisions and no sections. After privatisation, the

company had its operational area reduced to four hierarchical levels and the administrative area was decreased to 3 hierarchical levels.

7.5.6. Strategy

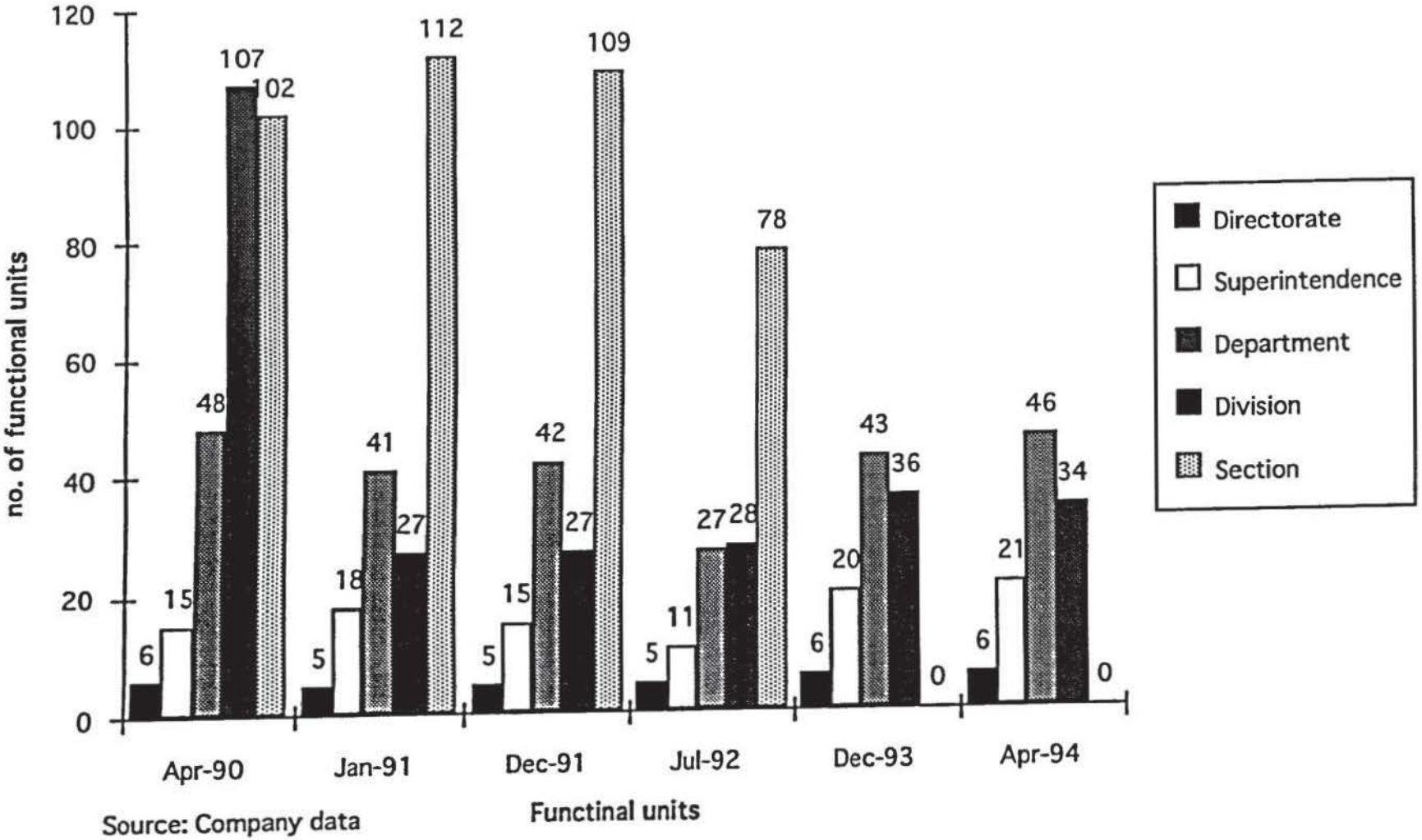
As the company has been affected by matters related to its control (shareholding dispute with GMJ). The senior management of the company was replaced at the end of 1994 which affected the corporate strategy. After that the new senior management is redefining the company businesses, the positioning in the market before customers, suppliers, and financial organizations. There is a commitment to lower costs, improve productivity and quality.

Lack of investment has been affecting the company strategy since late 1980s. By 1990, it was clear that funds to undertake Stage III (upgrade the production line to manufacture products with higher value added) would not be released by the Brazilian Government. Then, a decision to suspend the construction of the rolling mill units for medium shapes and bars and for heavy shapes and rail was made. That decision unleashed major changes throughout the company. Future expansion was cancelled at least for a while. The Operational area in charge of the expansion plan was profoundly affected, having to reduce its organizational structure by almost 30 per cent.

Also, by 1990, it was clear that the company would not be able to expand its range of products towards a more value-added product-mix because of lack of funds. It would continue to produce, for the time being, steel commodities which offered low or no profitability.

After privatisation, the company's strategic objectives appear to be as to develop a closer relationship with customers and suppliers through the establishment of strategic alliances and agreements of mutual interest and as to increase production and the range of products, giving priority to higher value-added products.

Figure 7.2 Changes in organizational structure



Source: Company data

7.6. Competitiveness and productivity

Productivity is regarded by many as a very important factor contributing decisively to increase a firm's competitiveness. For the Malaysian National Productivity Corporation (1992), productivity is a means to attain economic growth, to raise international competitiveness and improve people's quality of life. Elstrodt and Lopetegui (1994), Prowse (1994), Porter (1990), Scott (1989), Thurow (1990) are among those experts that support the idea of productivity being the driving force that upholds the long-term living standards of people. Krugman (1994) goes further when he says that productivity is the key to any notion of competitiveness.

Productivity is another component of the company analysis framework (Figure 4.2). It can be influenced by quantity and value, external and internal factors. It plays a major role bridging management and performance groups.

Influences on productivity (quantity) - mainly internal

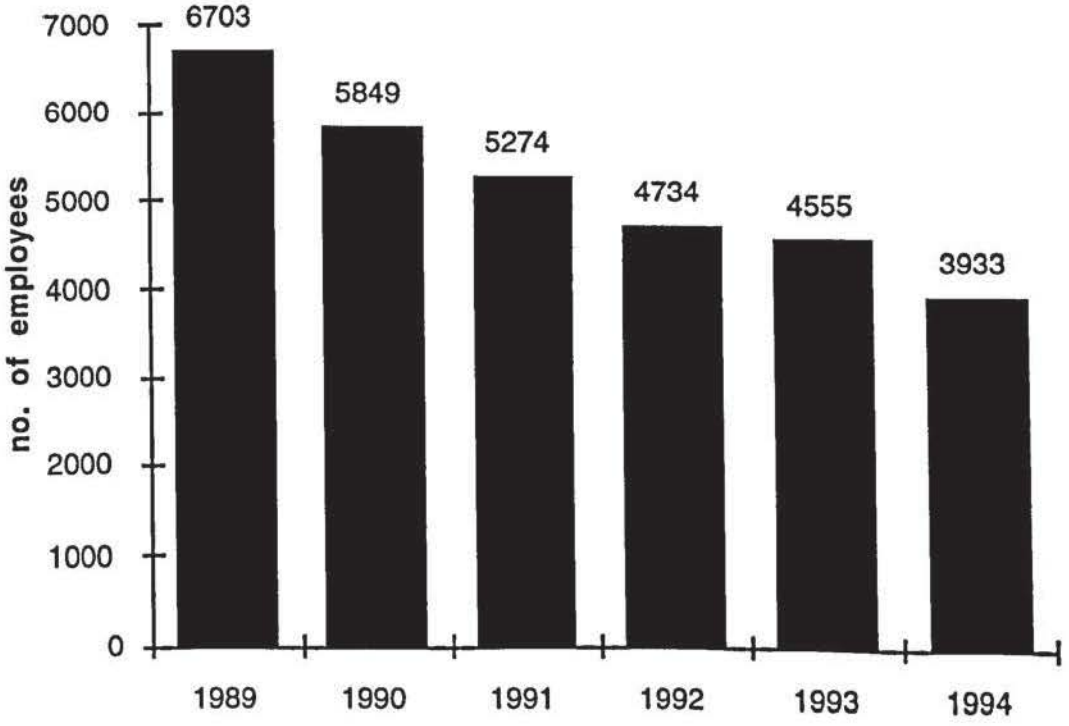
7.6.1. Workforce

Quality of workforce is hailed by almost everyone as a key factor to improve a firm's competitiveness. Any modern, international economy requires highly skilful and knowledgeable people. They are its lifeblood (HMSO, 1994).

These characteristics are meant to be used as a means to evaluate how committed and involved a company is to the quality of its workforce. The two companies in this project seem to have a clear concern on the subject. However, some employees have complained that there are not enough resources allocated to education and training. Usually, some companies are not willing to expend a great deal of money on training as they are afraid of losing their better prepared employees to competitors. A survey carried out by the "Harvard Business Review" in 1990, states that just 18% of Brazilian as against 62% of German and 49% of French business people deemed the workforce training as being a decisive factor for business success (Exame, 1991).

Beta's workforce has undergone major changes over the past six years. The restructuring started about three years before privatisation. Workforce number has shrunk drastically since then. Its reduction of the has been profound. By December 1989, the company had 6,703 employees. In December 1993, the number of employees had dropped to 4,555, representing a reduction of more than 30 percent. Between privatisation and the end of 1994, the number of employees had declined further to 3,933. All in all, 2,770 employees lost their jobs over this period, accounting for 41 percent of the original workforce (Figure 7.3).

Figure 7.3 Company's workforce by year



Source: Company data

The main reasons for these redundancies can be related to a wide ranging cost reduction programme, rationalisation and downsizing of services, improved managerial effectiveness related to organizational restructuring, contracting out, postponement of construction of the rolling mill units for medium shapes and bars and for heavy shapes and rails, and due to the need to get the company in better shape for privatisation. As a result, it seems reasonable not to blame privatisation as the only factor responsible for the decrease in

the number of employees. Restructuring and downsizing were also factors that affected the decrease of the workforce.

Figures 7.4 shows the workforce breakdown by category over a six-year period. A great number of changes have happened over time. For instance, the number of managers has dropped 63 per cent, as a result of restructuring and downsizing. The number of graduates and technicians decreased by more than 50 per cent, mainly due to the delaying of expansion plans. Clerks (administrative staff) have also been badly affected by the changes. Their number was reduced by almost 80 per cent since 1989. Bluecollar workers were the least affected during this period, having a reduction of 23 per cent. Significant, but far less than the other categories. The lower reduction in production-related employees suggests that the management and administration structure was too large before the privatisation and the restructuring. The changes were intended to reduce costs and improve production efficiency and lower costs.

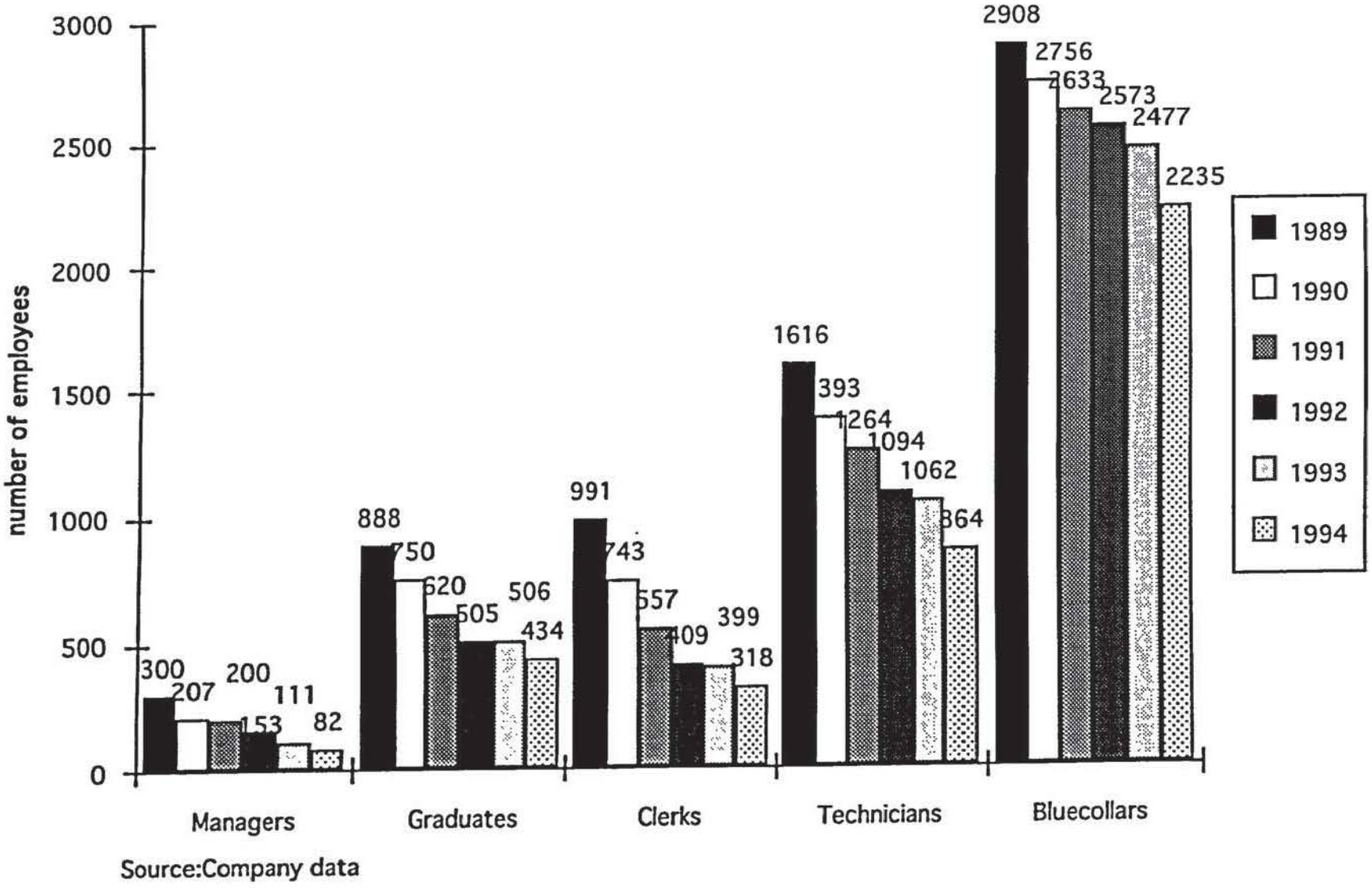
7.6.2. R&D and Technological capabilities

Beta is not known for having a R&D Department. It does not have units such as the Research Centre and the Technical Information Department in Alpha that could support research and development-related activities. Unfortunately, R&D for many Brazilian companies and managers (unlike Alpha and its managers) is not a priority. According to one interviewee at Beta,

> "R&D is for rich companies and rich countries. The company cannot afford such a luxury. There are other areas and priorities where the money should go, instead of being poured into R&D where the results are certainly not guaranteed. In future, maybe, we can think about that".

The company's R&D activities are by no means systematic and methodical. They are isolated cases that look at very specific problems. Most of the time they are related to upgrading operations such as the injection of coal fines into the furnace and improvements in the billet finishing area.

Figure 7.4 Workforce breakdown by category



Source:Company data

Without firm commitment from the top management, certainly the R&D activity is not going to play a bigger role in the future of the company. For the time being, that commitment seems very unlikely as the company is struggling to cope with other more fundamental problems such as survival.

It is possible to say that the company is technologically competent in the processes and products it engages in. Its processes and products are basic. The problem is that its capability is focused on producing commodity products. Development of higher value added products and more advanced processes would require further technology transfer, experience and investment.

7.6.2.1. Technological capabilities

Beta was the first steelmill project to be devised, designed, developed, implemented and managed almost entirely by Brazilians. The project was overseen by a team from Alpha. Most of the technological capabilities absorbed by Beta during the first stages of production were supplied by Alpha. About 60 per cent of the equipment was produced by domestic suppliers. Beta is currently one of the most up-to-date Brazilian steelworks.

Beta has established technology transfer contracts with several suppliers for non-stop updating in the steel industry. Among the main suppliers are Alpha, Tyazhpromexport, Nippon Steel, and Davy. Alpha has provided industrial technology, in-house training, operational and technical assistance in the blast furnace area; implementation of a station for the pig iron desulfurization; implementation and operational training for a steel plant static control; technical services for Beta's no.1 blast furnace's first revamping; supervision and instructions for start-up of the coke plant, sintering, blast furnace, steel plant, rolling mill; engineering teams training empowering them to develop operation research services.

Nippon Steel has provided technical assistance and training in maintenance and improvement of operational conditions of all equipment. Davy has supplied technical assistance on blast furnace maintenance, engineering and operations. Finally, Tyazhpromexport

has transferred technology on steel fusion to the converter and blast furnace revamping.

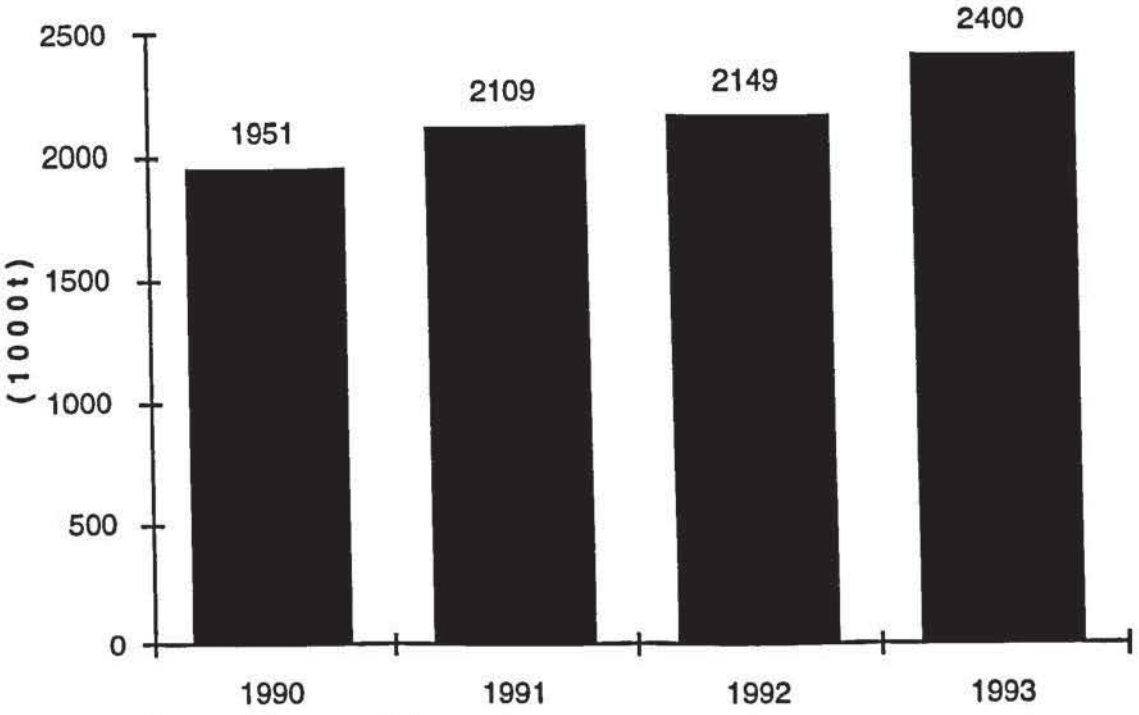
Despite lacking a organized Research Centre, Beta has been able to provide technical assistance and technology transfer to some large Brazilian companies. Among these are Acesita (steel company), RFF - The Federal Railroad Network, Belgo-Mineira, Cosipa, Kevia and Cosigua. It has submitted over 20 patent requests with the INPI (the Brazilian National Institute for Industrial Property - Patent Office). Beta owns a patent for the on-line system for inspection, grinding and banding of blooms and billets.

Areas where Beta has been able to improve operations are "injection of coal fines into the furnace (PCI); turbine for the blast furnace top gas; technological updating of electric/mechanical controls of equipment items; improvements on the billet finishing area; energy consumption/balance control center" (Damasio, 1994).

7.6.3. Production capacity

The company's nominal annual production capacity is 2m tonnes. However, Beta has been able to reach production above this mark in recent years. The company's crude steel production in 1990 was 1.95m tonnes, representing 10.6 per cent of the Brazilian crude steel production (20.6m tonnes). In 1991, the company's production reached 2.1m tonnes, an increase of 8.0 per cent in relation to 1990 (Figure 7.5 and Table 7.2). After a period of low demand and low prices both internally and abroad, and losses, 1991 came as a pleasant surprise to the company and to the steel industry as a whole. In spite of the recession in the Brazilian economy, the growing demand from the automobile industry and exports helped to increase steel industry production and steel prices. With the recovery on its way, crude steel production was 2.15m tonnes in 1992, an increase of 2 per cent in comparison with 1991, representing 11.1 per cent of Brazilian production of steel. In 1993, the company achieved a record production of crude steel. The production of 2.4m tonnes from an installed capacity of 2m tonnes, 20 per cent higher than its nominally installed capacity, was important for its financial performance as it enabled the company to sell 2.1m tonnes of semi-finished.

Figure 7.5 Beta's crude steel production



Source: Company data

7.6.4. Finance/Investment

Over the last four years, the company has had to take measures such as cost reduction, rationalization of services, restructuring of the main activities of the business, contract renegotiation, reduction of the stock levels, maximization of the economic-financial results, searching for new markets and so on. In 1993, these measures began to bring results. Net profits reached US$53m. The operational profit tripled in 1993 in comparison with 1992, from US$30m to US$99m. However, in 1994, Beta had net profit of just US$9.7m, far lower than the previous year's figure. One of the reasons was due to the 74-day closure of its blast furnace for modernization which represented an investment of US$67m.

Before privatisation, finance was restricted and ambitious investment plans had to be shelved. During privatisation and restructuring, the company has been struggling to improve financial performance by cost-cutting and productivity improvements. Prospects have looked too uncertain to engage in investment.

It is too early to evaluate the effects of restructuring and privatisation on the company investment. The last five years have

brought a great number of changes in shareholding and top management which has affected almost all plans of investment.

In the longer term, investment will be based on commercial considerations rather than government budgetary constraints.

Table 7.2 Crude Steel Production (Unit: 1000t)

Year	Beta	Brazil	Beta/Brazil (%)
1990	1951	20600	10.6
1991	2109	22617	10.7
1992	2149	23898	11.1
1993	2400	25149	10.5

Source: Company data

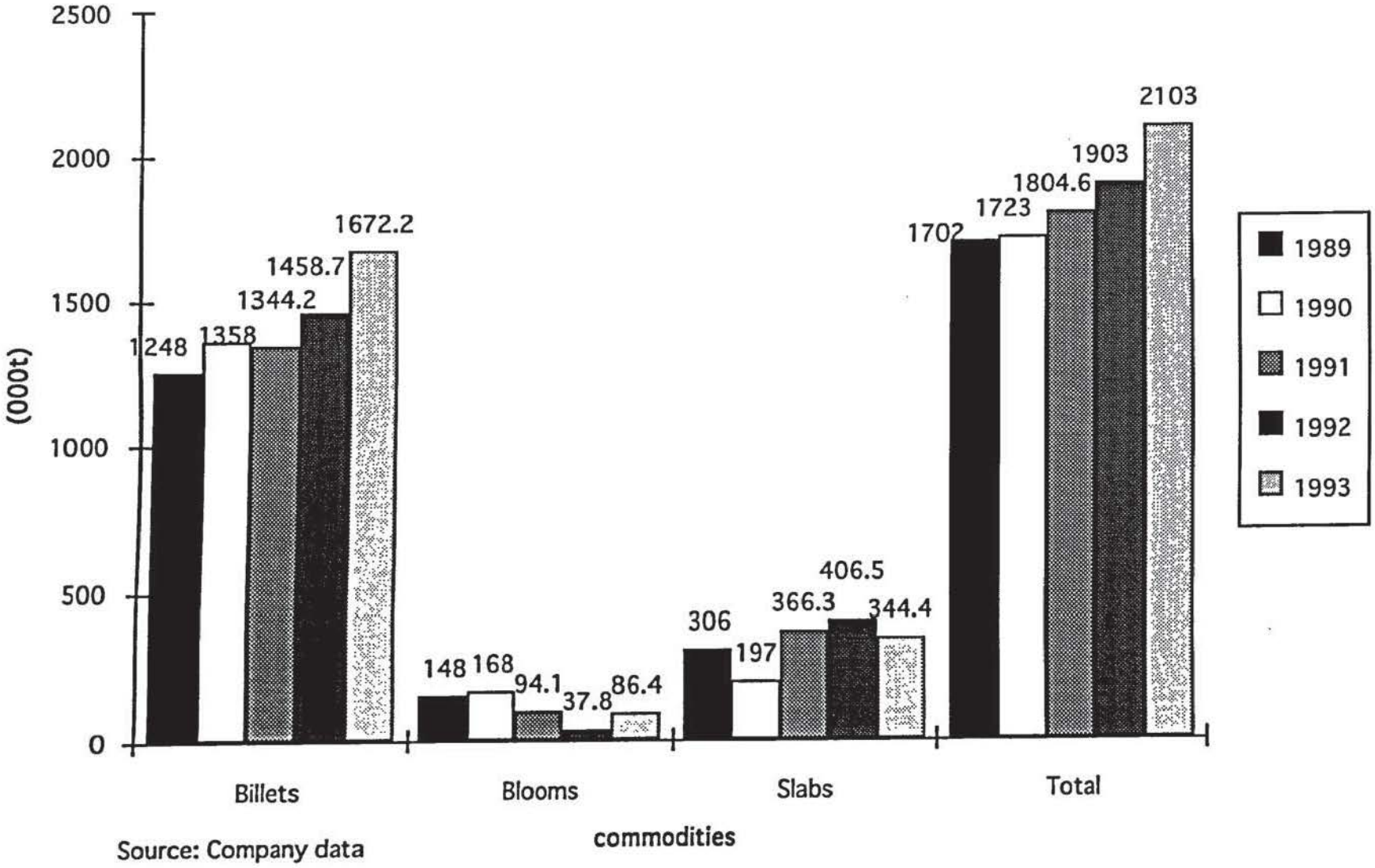
Influences on productivity (value/unit) - external and internal

7.6.5. Products

Currently the company's production mainly consists of commodity: billets, blooms and slabs. These are lower value-added products which can be purchased from a number of producers and typically no producer can offer an advantage over others. As a result, the seller cannot set the price but has to accept the going price and ensure profitability by controlling costs. Slabs are used to produce flat-rolled products. Billets and blooms are used as raw materials to manufacture rolled shaped products. As a big producer of commodities, Beta needs high volume and low cost production to be competitive and profitable. Commodities typically yield a low profit margin.

Figure 7.6 displays the breakdown of production by type of product from 1989 to 1993. In 1989, the production of billets was 1.25m tonnes or 73.3 per cent of the total production. The production of slabs and blooms accounted for 26.7 per cent of the 1989 production.

Figure 7.6 Beta's production of steel commodity products



Source: Company data

Production of billets, in 1991, was 53.2 per cent of total volume of the company's products. By 1992, the production had reached approximately 1.46 million tonnes, roughly 55 % of total volume and an increase of 8.5 per cent in comparison with 1991 figure.

However, 1993 represented a big increase of 24.4 per cent in relation to 1991 as a result of growing demand in home and foreign markets. Eventually, the Brazilian economy started its recovery from the recession of preceding years.

On the other hand, using the first and second quarters of 1994 as measures of comparison, billets stood for 54.8% of total volume in the first quarter and increased to 57.3% in the second quarter (Table 7.3). These figures show no relevant changes in terms of past billet share of annual total volume or in relation to other products. Privatisation, at least at that moment, seems not to have had any influence on the overall production figures.

Table 7.3 Products by total volume

Products	First quarter/1994		Second quarter/1994	
	(000t)	%	(000t)	%
* Billets	362.3	54.8	438.3	57.3
* Blooms	5.6	0.8	20.9	2.7
* Slabs	81.8	12.4	16.9	2.2
* Chemical Products	11.3	1.7	12.8	1.7
* Others	200.7	30.3	275.5	36.1
* Total	661.7	100.0	764.4	100.0

Source: Company data

Table 7.4 compares Beta's production of steel commodities (billets, blooms and slabs) with that of its main competitors (CST, Cosigua, Usiminas, and Cosipa). CST and Beta are the main producers of commodities in Brazil. The former is the main producer of slabs. The latter is the main manufacturer of billets and blooms. In 1987, Beta's production was 30.4 per cent of the Brazilian total production of steel commodities of about 5.7m tonnes while CST's production was 53.4 per cent of the total. The following year, Beta increased its marketshare to 33.0 per cent, almost 1.9m tonnes out of 5.7m tonnes. CST's fell to 42.4 per cent. At that time, CST was going through a very

difficult situation. Strikes, high costs, corruption, and maladministration and so on, had brought about a challenging moment to the company.

In 1989, Beta's marketshare dropped from 33.0 per cent to 27.2 per cent due to a decrease in demand and an increase in production from competitors Its production worsened, just 1.7m tonnes. Unfortunately, 1990 was not much better than the previous year. Production stayed the same, but with the aggravation that domestic prices were under tight government control, along with high costs of debt and administrative problems. The end of the last decade was very difficult for Brazilian steel companies. That period was marked by strikes, dismissals, low morale, low productivity, and financial crises.

Table 7.4 Billets, blooms, slabs production breakdown by enterprise

Year	Volume	Beta	CST	Cosigua	Usiminas	Cosipa	Others	Total
* 1987	- (000t)	1724	3023	185	34	10	688	5664
	- %	30.4	53.4	3.3	0.6	0.2	12.1	100.0
* 1988	- (000t)	1877	2417	150	285	65	900	5694
	- %	33.0	42.4	2.6	5.0	1.1	15.8	100.0
* 1989	- (000t)	1702	2713	324	413	138	971	6261
	- %	27.2	43.3	5.2	6.6	2.2	15.5	100.0
* 1990	- (000t)	1723	1777	216	258	134	766	4874
	- %	35.3	36.5	4.4	5.3	2.7	15.7	100.0
* 1991	- (000t)	1843	2906	135	445	26	539	5894
	- %	31.3	49.3	2.3	7.6	0.4	9.1	100.0

Source: Company data, IBS, BNDES

7.6.6. Price/deregulation

Until 1991, domestic steel prices had been under tight control by the Government which used the control as an instrument of industrial policy to favour steel using industries and to control inflation. Under price controls most Brazilian steel companies were trapped by persistently low revenues and profits. After the liberalization of the market, companies were able to increase their product prices by an average of 30% in 1992.

Table 7.5 shows product prices between 1987 and 1992. By comparing domestic and export product prices over six years, a number of inferences can be made. Domestic prices of blooms and slabs have throughout the period under examination been higher than export price. However, the same does not apply to billets which accounts for about 60 per cent of production. Four out of six years display export prices higher than domestic ones. This was in spite of depressed international prices from 1989 until 1994, when world steel prices rose steeply for some flat products.

Given that domestic billet prices were lower than export prices, the result was a transference of revenue from Beta, a state-owned company at the time, to customers mainly in the sector. This caused great damage to the financial health of the company, increasing its debt. As billet production was (and continues to be) Beta's main product, it accounted for a substantial part of Beta's revenue and therefore, price controls had a severe effect on Beta's profitability.

Table 7.5 Product price breakdown (US$/tonne) (a)

Market/Year		1987	1988	1989	1990	1991	1992
* Domestic	* Billets	166.00	180.00	224.00	211.00	208.00	193.00
	* Blooms	159.00	218.00	259.00	268.00	270.00	260.00
	* Slabs	172.00	249.00	261.00	205.00	205.00	164.00
* Export	* Billets	148.00	196.00	231.00	208.00	217.00	210.00
	* Blooms	155.00	181.00	222.00	195.00	219.00	205.00
	* Slabs	152.00	227.00	226.00	187.00	201.00	154.00

Source: Company data

(a) FOB at steelmills before tax

Table 7.6 sets out the average price of the company's products since 1986. It has been moving backwards and forwards, according to market prices and government interference. After the lifting of price controls in 1992, domestic prices were higher than international ones. Anyway, the current price policy is to allow the market mechanism to determine both domestic and export prices.

Table 7.6 Average price of company's products (US$/tonne) (a)

Year/Market	Domestic (D)	Export (E)	% E/D
* 1986	173.00	168.00	97
* 1987	167.00	149.00	89
* 1988	194.00	208.00	107
* 1989	233.00	227.00	97
* 1990	212.00	203.00	96
* 1991	209.00	213.00	102
* 1992	203.00	198.00	98

Source: Company data
(a) FOB at steelmills before tax

7.6.7. Market strategy

Due to the Brazilian economic stabilization programme and higher domestic market demand, the company was able to increase sales in 1993. In 1994 sales dropped because of lack of production as the blast furnace was under repair. Export sales have been increasing during the past years as a direct consequence of the company's policy to reduce its dependence on the domestic market during the recession period. However, as the domestic market demand has improved, the company needs to find a fine balance between its exports to traditional consumers abroad and a much more profitable internal market.

7.6.8. Relationship with customers

Beta's customers can be divided into two types: long-term and casual. The former are customers with rolling mill installations who have either no or insignificant capacity to manufacture semifinished products such as billets and blooms. They are unable to produce enough to supply the rolling mill. The casual customers are steelworks with rolling mills installations and equipment to manufacture semifinished products, but are obliged to go to market to buy inputs on a casual basis to supply its rolling mills due to strikes, accidents, blast furnace repairs and so forth.

Beta had a major problem in 1993/94 with its biggest customer, GMJ siderurgica, over more than a decade. Since the GMJ group became Beta's major shareholder, it started to delay payments to Beta and caused serious financial problem for Beta. The situation improved after 1994 when the GMJ group was obliged to sell its stake in the company due to financial difficulties.

Privatisation has helped Beta to free itself from legal constraints that were imposed by government regulations. The company claims that it ahs become more responsive to customers and seeks to keep up with the customers' needs through a programme of regular visits, exchange of experience and knowledge, making possible a much closer relationship.

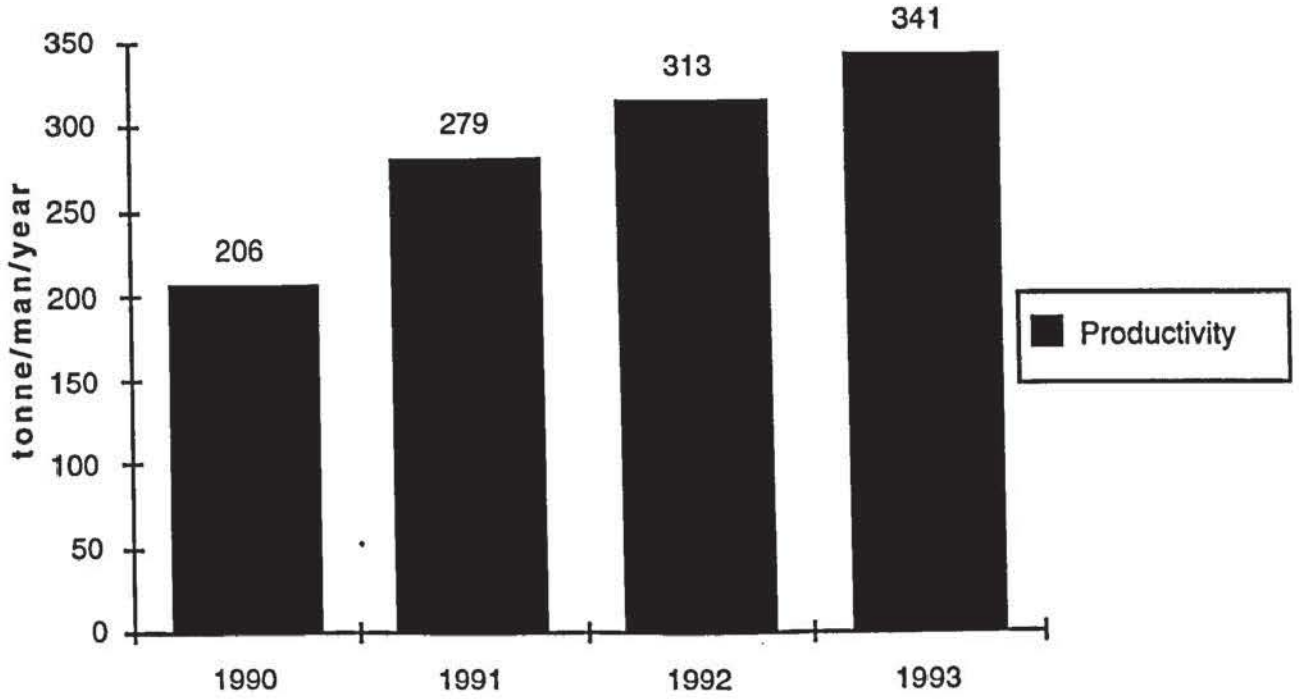
7.7. Performance

Performance is the third component of the company analysis framework (see Chapter 4, Figure 4.2).

7.7.1. Labour productivity

The productivity of Brazilian steel companies has a long way to go. Labour requirement per tonne of steel produced in Brazil remained well above that in the industrialised countries throughout the period. However, productivity improvement has been faster in Brazil since the beginning of the 1990s.

Figure 7.7 Labour productivity



Source: Company data

Figure 7.7 shows Beta's productivity from 1990 until 1993. In 1990, productivity was 206 tonnes per man-year, a very low figure even in comparison with other troubled Brazilian steel companies at the time. However, in the following three years, productivity rose 66 per cent in comparison with 1990, reaching 341 tonnes per man-year in 1993. Most of this improvement can be explained by the reduction of the labour force and improvements in working practices and hardware carried out as part of an overall rationalisation and downsizing plan, and expansion of the total quality management programme throughout the company.

7.7.2. Costs

Details about Beta's cost structure were not available to the researcher when the data collection took place. However, the company's statements of income (between 1991 and 1994) offer information about the company's costs. It is clear from these figures that costs of products and services are too high as a percentage of net revenues. They stand for more than 80 per cent. On the other hand, Alpha's cost of products and services do not exceed 70 per cent of net revenues. As the restructuring programme indicates the company is

committed to reducing its costs as a means of overcoming its difficulties and increase productivity.

7.7.3. Sales and marketshare

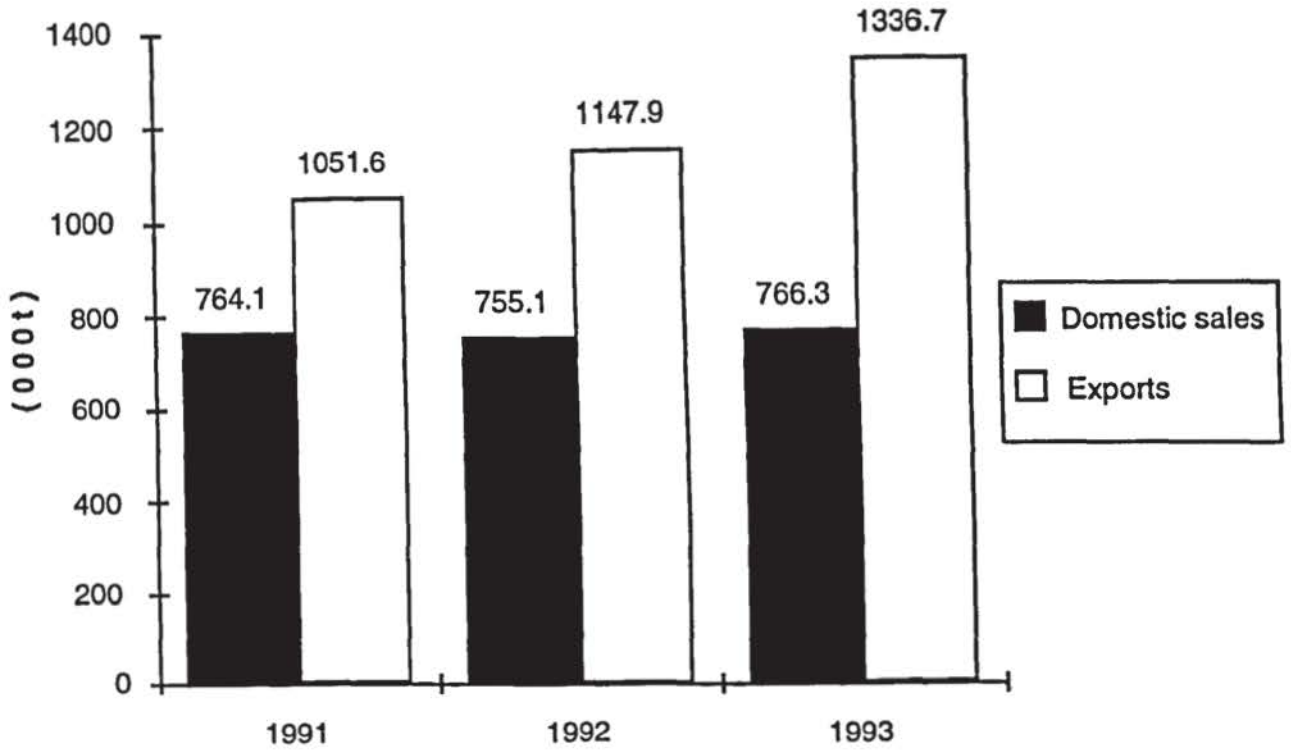
Sales to domestic and international markets can present a picture of the reality both of the Brazilian economy and Beta. After a period of disarray, recession and low domestic prices, the strategy envisaged by Beta's management to escape the hardship of the 1980s was to concentrate their skills and efforts on increasing sales abroad.

Figure 7.8 and Table 7.7 show distinctly the steady growth of external sales in relation to domestic ones. In 1991, while 42.1 per cent of the company's sales were in the Brazilian market, 57.9 per cent went abroad. By 1992, the proportion of exports has increased even further. By 1993, internal sales fell to 36.4 per cent and exports rose again, reaching 63.6 per cent. With these figures, there seems to be a clear drive towards the international market, especially the South East Asian markets (further details are provided below). Increase in exports counter-balanced difficulties in the domestic market and raised hard currency badly needed by the company to service the heavy debt.

Table 7.7 displays the sales breakdown by region in terms of percentage of tonnage and percentage of revenue. In 1991, in spite of domestic sales representing 42.1 per cent of the total tonnage, the revenue percentage reached was 46.9 per cent. However, exports had a different result. While exports reached 57.9 per cent of the tonnage, it stood for just 53.1 per cent of the total revenue. The explanation is linked with product prices and profit margins at home and abroad and by the types of products. On average domestic profit margins tend to be higher than international ones as the company avoid costs of transport, and insurance. But when there is a recession in the Brazilian market, there is no alternative for the company. It is better to export even with smaller profit margins than to keep its products in stock.

After the lifting of the domestic price controls in 1991, the internal market became quite attractive compared with the international one, though recently international prices have started to increase after a long period of decline (Financial Times, August 1995).

Figure 7.8 Sales breakdown by destination



Source: Company data

Table 7.7 Sales breakdown [tonnage(%) - revenue(%)]

Region	1991		1992		1993	
* Domestic sales	42.1	46.9	39.7	46.9	36.4	43.1
* Exports	57.9	53.1	60.3	53.1	63.6	56.9
* Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Company data

Table 7.8 shows the first figures of domestic and international sales after privatisation. There are no big changes, at least for the time being. In the short-term major changes are not expected.

Table 7.8 Sales breakdown

Region	First quarter/1994		Second quarter/1994	
	(000t)	%	(000t)	%
* Domestic sales	169.2	37.6	174.3	36.6
* Exports	280.5	62.4	301.8	63.4
* Total	449.7	100.0	476.1	100.0

Source: Company data

7.7.3.1.Domestic market share

Beta has seen its domestic billets and blooms market share increase since 1987 (Table 7.9). At that time, 61 per cent of the domestic market belonged to Beta. Since then, its share has risen continuously to reach 77 per cent in 1991. As a result, 59 per cent of all semifinished product domestic sales were made by Beta, in spite of a deep recession in the Brazilian market during the 1980s, price controls and lack of investment by the Government. The slab sales market share was more uncertain, showing greater variations.

In 1991, domestic sales of billets reached almost 0.68m tonnes, representing 46 per cent of the total domestic sales of the company. Two years later, in 1993, it reached 0.74m tonnes, 49.1 per cent of total domestic sales. Blooms and slabs together accounted for 5.9 per cent and chemical products 4.6 per cent of the domestic sales in 1991 (Figure 7.9).

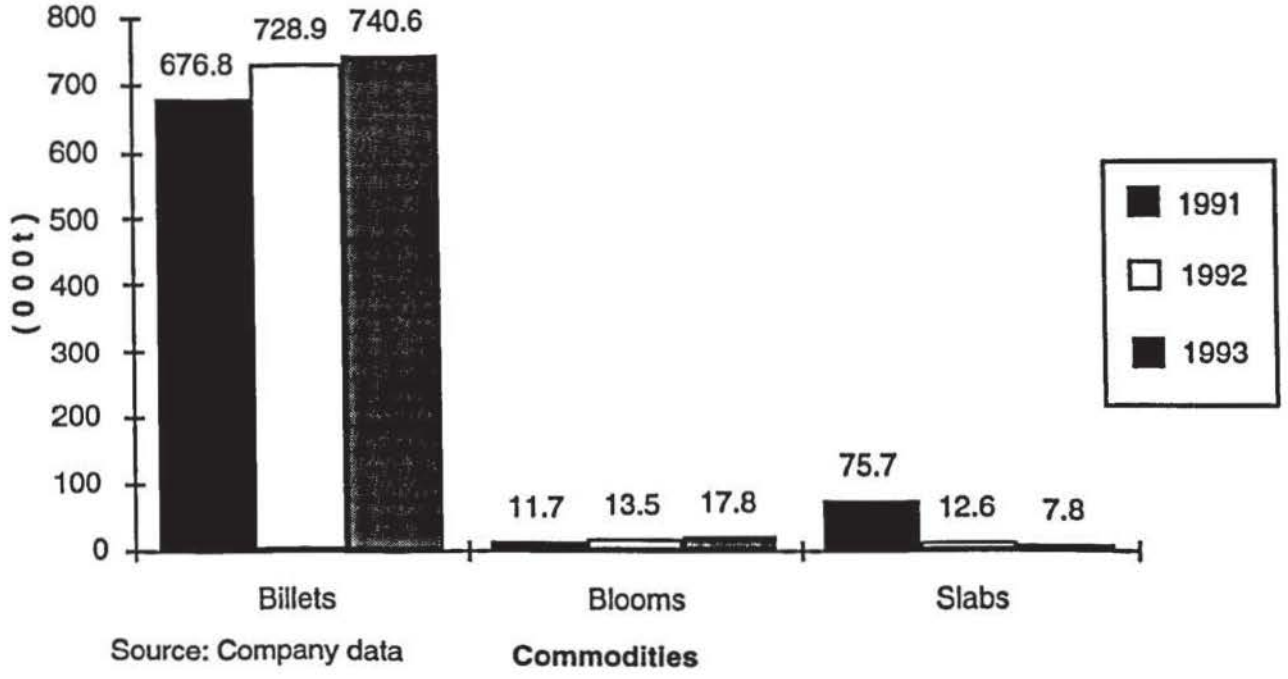
After privatisation, domestic sales figures shown in Table 7.10 did not change so much in comparison with the previous period. One reason, possibly, could be the length of time considered between the privatisation date (September 1993) and first and second quarters of 1994. That period is quite short to forecast any reliable tendency. Billets stood for more than 40% of domestic sales in the first quarter of 1994. It dropped to 35.3% in the second quarter of 1994. Both blooms and slabs in the first and second quarters showed a week performance in the domestic market. The reason is because of an increase in sales abroad.

Table 7.9 Domestic sales marketshare of billets, blooms and slabs

Year	Total domestic sales				Beta domestic sales marketshare		
	billets blooms (000t)	slabs (000t)	total (000t)	volume (000t)	billets blooms %	slabs %	total %
* 1987	1199	851	2050	1062	61	39	52
* 1988	1047	401	1448	867	64	37	60
* 1989	1049	155	1204	693	65	---	58
* 1990	870	315	1185	638	69	7	54
* 1991	886	406	1292	764	77	18	59

Source: Company data, IBS, BNDES

Figure 7.9 Domestic sales of commodities



Source: Company data

Table 7.10 Domestic sales breakdown by product II

Product	First quarter/1994 (000t)	%	Second quarter/1994 (000t)	%
* Billets	155.6	41.4	161.3	35.3
* Blooms	5.1	1.4	5.9	1.3
* Slabs	8.4	2.2	7.0	1.5
* Chemical Products	11.3	3.0	12.7	2.8
* Others	195.6	52.0	269.6	59.1
* Total	376.0	100.0	456.5	100.0

Source: Company data

7.7.4. Exports

7.7.4.1. Exports by product

Among the products exported by Beta, billet is the most important, accounting for more than 60 per cent of the total. In 1991, it represented 63.4 per cent of total volume.

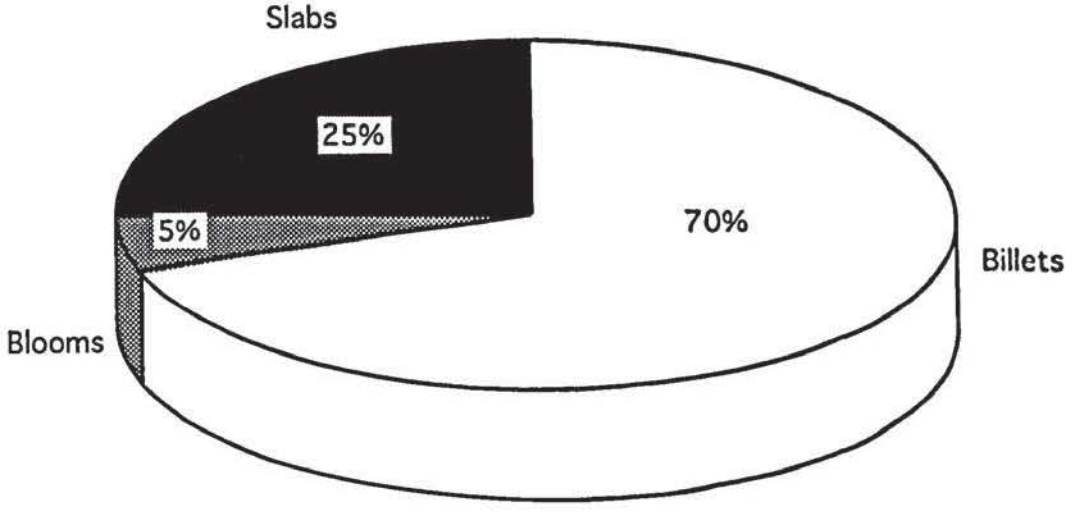
Figure 7.10 and Table 7.11 provide the export sales figures by product from 1991 until 1993. In 1991, billets and slabs represented 91% of export. The following year, these two products stood for 97.8 per cent of export, 63.5 per cent being of billets and 34.3 per cent slabs. In 1993, billets increased their share to 69.6 per cent while slabs dropped to 25.2 per cent. Blooms export represented a little more than 5% of total exports. Chemical products exports were almost nil.

Table 7.11 Export sales breakdown by product I

Products	1991		1992			1993		
	(000t)	(%va)	(000t)	(%va)	(%ha)	(000t)	(%va)	(%ha)
* Billets	667.4	63.4	729.7	63.5	109.3	931.5	69.6	139.6
* Blooms	82.5	7.8	24.3	2.1	29.5	68.6	5.1	83.2
* Slabs	290.7	27.6	393.9	34.3	135.5	336.6	25.2	115.8
* Chemical Products	-----	-----	0.6	0.1	-----	0.4	-----	-----
* Others	12.3	1.2	0.4	-----	3.3	1.9	0.1	15.4
* Total	1052.9	100.0	1148.9	100.0	109.1	1339.0	100.0	127.2

Source: Company data

Figure 7.10 Company's export of steel commodities in 1993



Source: Company dat

7.7.4.2. Exports by country

Beta exports have been increasing over the last years as a direct result of the fall in domestic demand (at least until 1993). The same has happened throughout the steel industry. It is hard to find any company that did not look at the international market as a natural way to compensate for the drop in domestic sales.

Table 7.12 shows the export volume by country. In 1991, the biggest consumer was Korea, accounting for 18.2 per cent of the total volume and 17.2 per cent in terms of revenue. The second biggest importer was the USA. It stood for 8.8 per cent of volume and 9.0 per centof revenue. The next biggest was Malaysia representing 8.7 per cent of the total volume and 8.8 per cent in revenue. In 1992, Korea reduced its imports to approximately 0.14m tonnes, accounting for 12.0 per cent of volume and 11.1 per cent in terms of revenue. But the biggest buyer that year was Taiwan.

In 1993, Malaysia increased its purchases enormously. In volume terms, sales reached almost 0.24m tonnes, representing 22.7 per cent in revenue. After the creation of Mercosul, Argentina has become a much bigger customer. In 1993, it stood for 8.6 per cent in volume terms and 9.2 per cent in revenue.

From these figures, one can infer that there is a growing sales trend towards Pacific countries. At this moment, Beta considers that region to be one of its most important markets.

7.7.4.3. Exports by continent

It is too early to say that exports have been affected by the restructuring and privatisation programmes undergone by Beta. However, after privatisation, the company is seeking new markets and trying to increase sales to current customers.

By 1991, exports to South East Asia and the rest of Asia accounted for 67.6 per cent of total volume and 66.7 per cent of revenue. Coming in second place was North America with 17.5 per cent of imports and 17.8 per cent of revenue. The following year, Southeast Asia increased its share from 44.7 per cent to 47.4 per cent in terms of volume and from 44.6 per cent to 47.4 per cent in revenue. Again, in 1993, Southeast Asia carried on as the biggest customer (Table 7.13).

Table 7.12 Export volume by country [tonnage (000t) - tonnage (%) - revenue (%)]

Country	1991 (000t)	1991 (%)	(%)	1992 (000t)	1992 (%)	(%)	1993 (000t)	1993 (%)	(%)
* Malaysia	91.7	8.7	8.8	94.1	8.2	8.5	283.3	21.2	22.7
* Korea	192.1	18.3	17.2	137.3	12.0	11.1	163.6	12.2	10.3
* Taiwan	60.2	5.7	5.3	143.9	12.5	11.3	190.2	14.2	13.0
* Argentina	-----	----	----	48.4	4.2	4.4	115.6	8.6	9.2
* USA	92.2	8.8	9.0	89.0	7.8	9.1	47.6	3.6	4.4
* Singapore	74.8	7.1	7.4	25.1	2.2	2.3	75.6	5.7	6.0
* Canada	12.3	1.2	1.3	31.9	2.8	3.7	44.8	3.4	4.2
* Others	528.3	50.2	51.0	578.6	50.3	49.6	415.9	31.1	30.2
* Total	1051.6	100.0	100.0	1148.3	100.0	100.0	1336.6	100.0	100.0

Source: Company data

The growing sales to Asia shows the importance of that market for the company as well as an indication of the presence of fast-growing economies with an increasing purchasing power throughout the region. However, in the long-term probably the situation is going to change as most of the current importers are building steelworks to supply their domestic market and exports.

7.7.5. Profitability and asset turnover ratios

Figure 7.11 sets out some of Beta's main profitability ratios and asset turnover. Beta's PBIT/total assets ratio has been quite low. The company's ratio is far below the Alpha's ratio. One of the reasons is the high cost of production. In 1994, the ratio was worse than previous years due to maintenance. PBIT/sales ratio represents the gross profit margin on sales. The figures are not impressive. Since 1991 the ratio has worsened. Again, high cost of products is one the main reasons for this performance. Other reasons are related to the company's product-mix based on commodities and unstable production and sales.

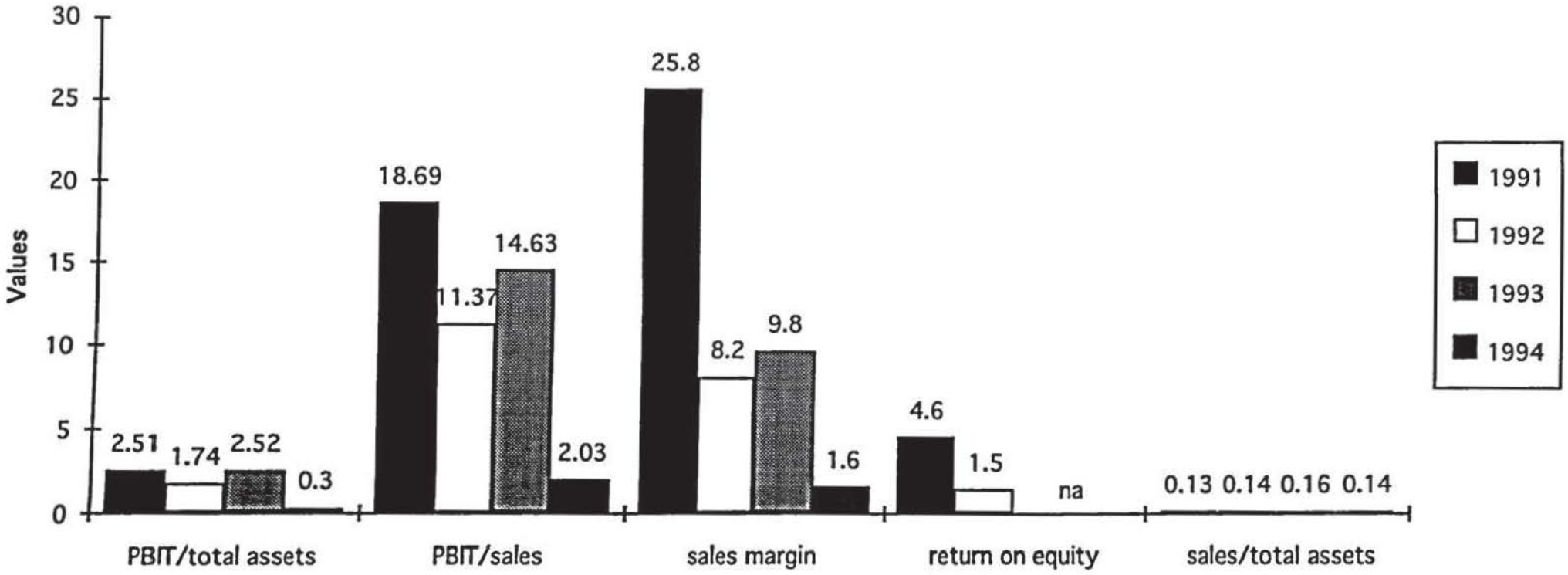
The sales margin (net profit over sales) has dropped sharply over the last four years. In 1991, Beta's sales margin was excellent mainly due to high financial gains and lifting of price controls. After that the decrease has been steady because of reduction in financial gains, high cost of products and restructuring. Return on equity (net profit over stockholders equity) presents similar patterns to sales margin. The figures are poor. The reasons are the same as mentioned above. Beta's Asset turnover is very low. It shows that the company needs almost seven years to turn its assets over. Meanwhile, Alpha needs only two years.

Table 7.13 Export volume by continent [tonnage (000t) - tonnage (%) - revenue (%)]

Continent	1991 (000t)	1991 (%)	1991 (%)	1992 (000t)	1992 (%)	1992 (%)	1993 (000t)	1993 (%)	1993 (%)
* Southeast Asia	469.9	44.7	44.6	544.5	47.4	47.4	809.3	60.6	61.6
* Asia	240.9	22.9	22.1	170.0	14.8	14.8	248.2	18.6	15.4
* North America	184.0	17.5	17.8	148.2	12.9	12.9	109.2	8.2	9.9
* South America	55.1	5.2	5.3	48.4	4.3	4.2	123.2	9.2	9.7
* Central America	8.9	0.9	0.9	41.7	3.6	3.7	5.1	0.3	0.3
* European Community	80.2	7.6	7.7	168.8	14.7	14.7	41.6	3.1	3.1
* Europe (Excluding EU)	2.7	0.3	0.7	-----	-----	-----	-----	----	----
* Africa	9.9	0.9	0.9	26.3	2.3	2.3	-----	----	----
* Total	1051.6	100.0	100.0	1147.9	100.0	100.0	1336.6	100.0	100.0

Source: Company data

Figure 7.11 Profitability and asset turnover ratios



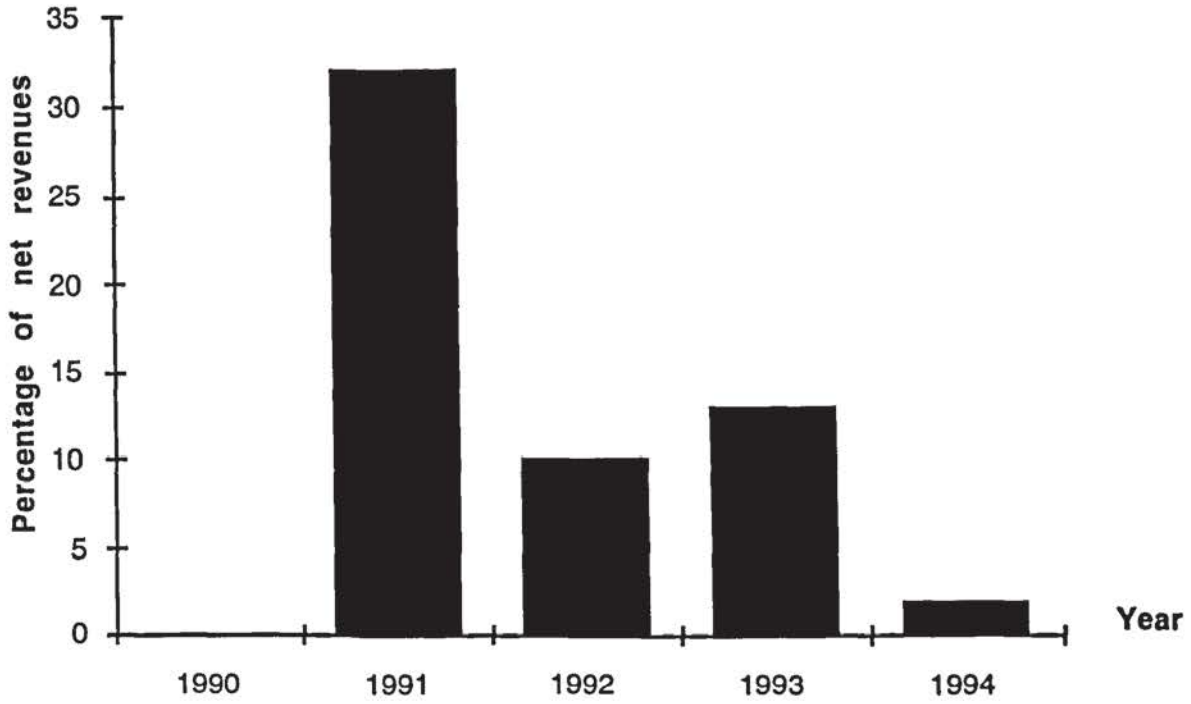
Source: Exame Melhores e Maiores (various issues) and company's balance sheets
na: data not available

7.7.6. Profits and Earnings per share (EPS)

Figure 7.12 sets out the profit performance over a five-year period. Beta's profit figures have been quite unstable over time. This may be a consequence of market and internal changes. In 1990, the company had heavy losses due to mainly low demand, price control, and a restructuring programme preparing the company for privatisation. The year of 1991 showed a surprising recovery in profits due to chiefly the lifting of government price control and increase in domestic demand. The following years have shown a deep fall in profits. In 1992, profit reached 10 per cent of net revenue down from more than 30 per cent in 1991. In 1993, the company's profit increase slightly reaching 13 per cent of net revenues. Next year, due to maintenance requirements and reduction in production and sales, profit dropped to less than 2 per cent of net revenues.

Figure 7.13 displays Beta's earnings per share over a three-year period. The figures reflect the company's net profit results. In 1993, year of privatisation, the net income per thousand shares reached its peak of US$0.36. Next year, due to a decrease in profits, the EPS dropped to US$0.05. It is too early to draw any conclusion. First of all, the company needs to sort out its own internal difficulties (shareholding, board of directors replacement, reduction of costs, etc) to be able to set a clear route ahead.

Figure 7.12 Beta's profit (%)



Source: Company data

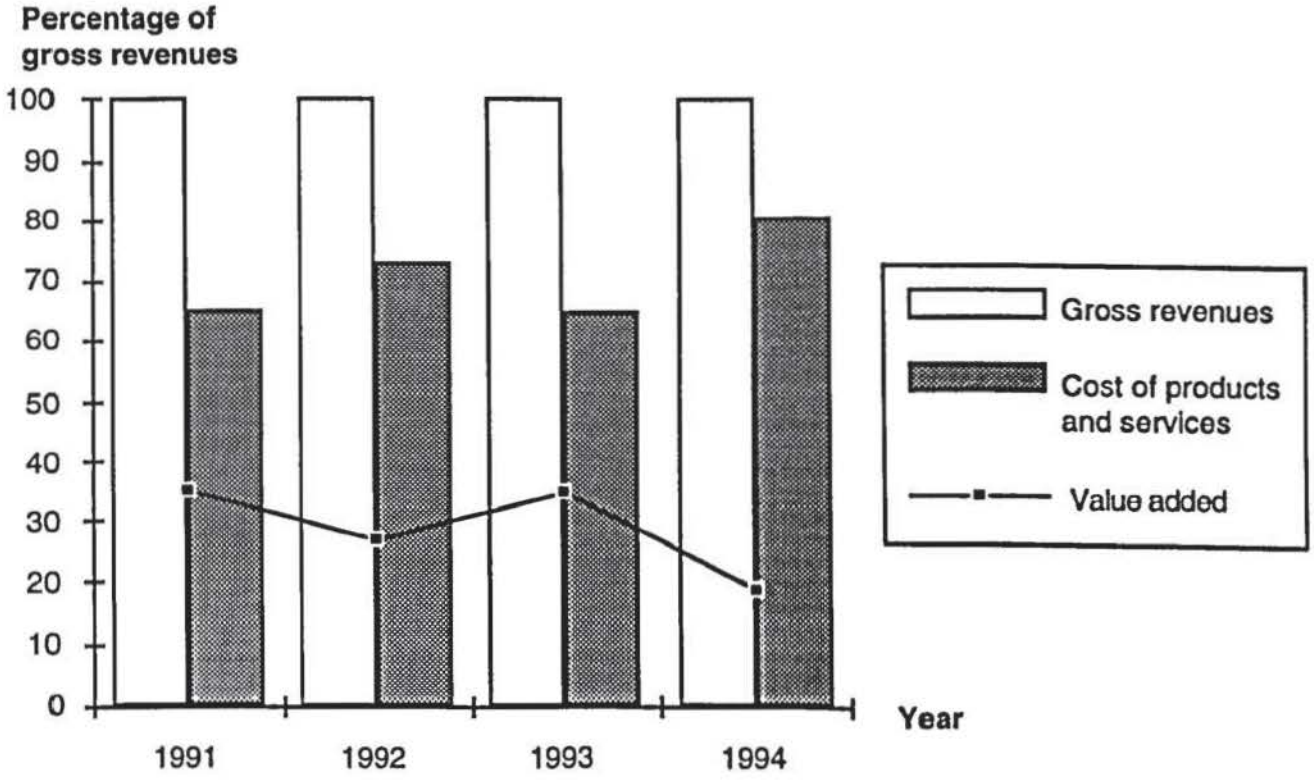
Figure 7.13 Earnings per share (%)

Source: Company data
* Index, 1992-94 (1992=100): EPS, earnings per share

7.7.7. Value added

Figure 7.14 shows Beta's value added over a four-year period. The cost of products and services as a percentage of gross revenues has been higher than in Alpha's case. This explain Beta's lower value added figures. The value added shows a variation between nineteen and thirty five percent of gross revenues, being the worst result in 1994, due to maintenance.

Figure 7.14 Beta's value added



Source: Company data

7.8. Conclusions

Beta, since its foundation, has been through a series of unwelcome and unexpected hurdles and difficulties. To begin with it is worth remembering the year of 1978, when the troubles started. Due to the international oil crisis, the Brazilian economy was hit quite badly. The financial resources very much needed to undertake the project became uncertain and scarce. The Brazilian Government was no longer assured of the feasibility of the project as had been

planned. The initial plan was to build a steelmill able to produce 10m tonnes of steel a year. Instead, by 1993, the production of steel had reached 2.4m tonnes of a projected capacity of 2m tonnes.

Before privatisation, Beta carried out several measures preparing for a new reality in private hands. First of all, since the installation of the rolling mill units for medium shapes and bars and for heavy shapes and rail had been suspended, the company needed to adapt the size of its workforce to a capacity of 2m tonnes. Units in charge of future expansion were decommissioned. In 1990, 40 functional units connected with the Superintendence of Engineering and works were eliminated.

Beta experienced quite difficult times caused by governmental steel industry policy uncertainties, high financial and operational costs, price controls, a certain degree of mismanagement, political interference, and quite a few changes over the years culminating in privatisation in 1993.

It is important to point out that Beta was the last Brazilian steel company to be privatised, in September 1993. As a consequence the analysis of the impact of privatisation is difficult to carry out since is not enough time has elapsed to obtain a clear picture of the whole process and its consequences for Beta. However, some conclusions can be drawn since the main preparation (restructuring) for privatisation started approximately at the beginning of the 1990s. After the change in ownership, the company has more autonomy to establish its own aims without government interference. There is more flexibility and freedom to make decisions and to deal with the main stakeholders; greater customer care and more emphasis on search for new markets; greater freedom to advance relationships with banks and foreign organizations; more flexibility to contract/dismiss people as well as to define policy on wages and salaries.

The examination of Beta within the company analysis framework has shown some major changes in all three components and measures of Figure 4.2. Organizational structure was reduced by more than 60 per cent, workforce decreased by about 35 per cent, and labour productivity increased by more than 60 per cent. There has been an improvement in the relationship with customers and suppliers. However, most of the performance measures have shown

very poor results over the last five years. There are not visible changes regarding R&D, technological capabilities, and product-mix.

Beta, being a relatively new steelmill, has more modern hardware than most South American steel companies. In spite of this, due to lack of sufficient investment since the last decade, chances are that in a few years' time the company will need to invest a lot of money to keep abreast of the latest technologies. A great number of resources will be necessary to boost the computerisation and processes of production, energy conservation, and environmental protection. As more than half of Beta's production is bound for foreign markets, a serious programme of modernization is needed to increase quality, productivity and reduce costs. Without that, the company probably will lose some of its foreign customers.

In sum, the case study has demonstrated that Beta's performance was poorer than that of Alpha before privatisation. The pressures for improvements through restructuring and downsizing, efficiency and performance started before privatisation but Beta still has some of the weaknesses which it had before.

8. ANALYSIS OF THE CASE STUDIES

8.1. Introduction

Comparative analysis of the two cases (Alpha and Beta) focuses initially on the differences in levels of competitiveness related to productivity between them. Subsequently, the analysis examines to what extent a change of ownership through privatisation and the related restructuring enhanced or hampered such levels of competitiveness. Of course, the comparison of two case studies inevitably introduces constraints on the generalisations that may be gleaned from the analysis (this issue is discussed in Chapter 4).

Nevertheless, taking two firms in the same sector, subject to the same privatisation processes, provides depth and allows a detailed examination of context, the role of company history and provides rich data on performance and competitiveness. It should also be noted that Beta was privatised more recently than Alpha, so some post-privatisation results cannot yet be known. However, there are sufficient data to allow comparisons between the two firms especially at the firm level of analysis.

8.2. Applying the Company Analysis Framework

For reasons of difficulty in comparability over time, no analysis is made of stock market data or other macro indicators since they could produce erroneous post hoc rationalisations in both cases, and they go beyond the parameters of the company analysis framework of this study. The comparative results are tabulated on Table 8.1 and 8.2. In each case the three factors of Management, Competitiveness and Performance are utilised to facilitate comparison of Alpha and Beta. The three factors are analysed in turn in the following sections. Analysis of the macro-economic climate, both nationally and internationally, and its implications for the company are beyond the scope of the current research but would, of course, be a key item in any future research agenda, especially when a greater number of organizations could be compared empirically. That is for the future. For now, the focus is on the three company level factors.

Table 8.1 A summary of changes in ALPHA due to restructuring and privatisation and its implications for performance and competitiveness within "the company analysis framework"

GROUP	MEASURES	CHANGES	IMPLICATIONS
• Management	* Ownership	- public to private	* Greater entrepreneurship, flexibility, autonomy, teamworking, faster decision making, leaner administrative structure, and less red tape. Greater freedom to establish new partnerships and alliances
	* Governance	- centralized to more participatory decisions	
	* Autonomy	- dependence to greater autonomy and initiative	
	* Incentive	- shareholding and performance-related pay	
	* Organizational structure	- fewer hierarchical levels - functional units were reduced by about 50 per cent over a five-year period	
	* Strategy	- establishment of partnerships and alliances. Acquisition of stakes in companies	

	* Workforce	- reduction of workforce by about 25 per cent over a five-year period	* greater reduction of workforce, closeness to customers, market deregulation, and improved product-mix
	* R&D and Technological capabilities	- no evident changes	
	* Production capacity	- no evident changes	
	* Finance/ Investment	- acquisition of shares in companies	
• Competitiveness/ Productivity	* Products	- production of galvanized plates started in 1993.	
	* Price/ Deregulation	- lifting of price control in 1991 and greater market deregulation	
	* Market strategy	- improve product-mix through higher value-added products	
	* Relationship with customers	- greater closeness to customers	

	* Labour productivity	- increased by about 20 per cent over a five-year period	* greater labour productivity, labour cost savings, sales per employee, and profitability
	* Costs	- cost of products and services has been stable as a percentage of net revenue - labour cost savings: more than 5 per cent as a percentage of operating costs	
• Performance	* Sales/ market share	- sales (value) per employee increased by more than 50 per cent over a five-year period - market share has been stable	
	* Exports	- exports have been reduced	
	* Profitability and asset turnover ratios	- profitability ratios have improved since 1991 - asset turnover has decreased	
	* Profits/EPS	- profits as a percentage of net revenues have increased by more than three times since 1991 - EPS has increased since 1991	
	* Value added	- it has been stable	

Table 8.2 A summary of changes in BETA due to restructuring and privatisation and its implications for performance and competitiveness within "the company analysis framework"

GROUP	MEASURES	CHANGES	IMPLICATIONS
• Management	* Ownership	- public to private	* Greater flexibility, autonomy, teamworking, faster decision making, leaner administrative structure, and less red tape. Profound reduction of functional units.
	* Governance	- centralized to more participatory decisions - Board of Directors replaced	
	* Autonomy	- dependence to greater autonomy and initiative	
	* Incentive	- shareholding and performance-related pay	
	* Organizational structure	- fewer hierarchical levels - functional units were reduced by about 60 per cent over a four-year period	
	* Strategy	- establishment of partnerships and alliances.	

	* Workforce	- reduction of workforce by more than 40 per cent over a five-year period	* profound reduction of workforce, greater closeness to customers, market deregulation.
	* R&D and Technological capabilities	- no evident changes	
	* Production capacity	- no evident changes	
	* Finance/ Investment	- overhauling of the financial situation	
• Competitiveness/ Productivity	* Products	- no evident changes	
	* Price/ Deregulation	- lifting of price control in 1991 and greater market deregulation	
	* Market strategy	- improve product-mix through higher value-added products	
	* Relationship with customers	- greater closeness to customers	

	* Labour productivity	- increased by about 60 per cent over a four-year period	* greater labour productivity, labour cost savings, and sales per employee. Profitability have not improved
	* Costs	- cost of products and services has increased as a percentage of net revenues - labour cost savings: about 30 per cent as a percentage of operating costs over a four-year period	
• Performance	* Sales/ market share	- sales (value) per employee increased by more than 75 per cent over a five-year period - market share has been stable	
	* Exports	- exports as a percentage of total sales have been stable	
	* Profitability and asset turnover ratios	- profitability ratios have worsened since 1991 - asset turnover has been stable	
	* Profits/EPS	- profits as a percentage of net revenues have decreased since1991 - EPS has not been stable	
	* Value added	- it has decreased since 1991	

8.3. Management

Both Alpha and Beta show very similar patterns on this factor. When interviewed, many key respondents indicated that management processes (especially changes in human resource management practices, organizational structure and strategy) were crucially important. Both firms reduced the number of levels in the hierarchy and established a new network of partnerships and alliances with their new 'flatter' structures. Downsizing of the labour force was also common in both cases and an increase in shareholding and performance-related pay were also common factors. So the 'mechanics' of the management strategies were very similar (see Table 8.1 and 8.2). Deeper analysis, however, reveals marked differences between the ways in which these factors were implemented. For example, in Beta, whilst decentralization and autonomy were, on the face of things, about equal to Alpha; the levels of political interference from Government through decrees and directives, the levels of interference from Senior Management in decision making were greater, and the degree of workforce flexibility and autonomy commensurately lower. The impact of this 'centralized management in a decentralized structure' was profound. Employee motivation was reduced. Levels of cynicism increased and the perception of Beta's corporate image by outside stakeholders was reduced, mainly because of the instability provoked by the replacement of the Board of Directors, the struggle among shareholders and the lack of clear strategic direction.

8.3.1. Organizational structure

In Alpha the number of functional units was reduced by about 50 per cent over the last five-year period. There are also fewer hierarchical levels.

Beta had a more far-reaching reduction of its organizational structure than Alpha. The number of functional units - directorates, superintendences, departments, divisions, and sections - was reduced from 278 in April 1990, to 107 in April 1994. This represents a decrease of approximately 60 percent over a four-year period. As a

consequence the number of structural layers was reduced significantly.

The greater structural change in Beta raises fundamental questions over the influence of both privatisation and management. Both firms took approximately the same time to decentralize, so there was little question of the pace of change being forced by external agency. The structural changes occurred over years rather than months. Rather, the taking out of functional units appear to be directly a management strategy. In Beta, this meant the disappearance of many functions whereas in Alpha the functions were generally retained (but the number of people employed was reduced).

By 1990, Beta's management stopped a major expansion because of lack of funds. So, a decision to suspend the construction of the rolling mill units for medium shapes and bars and for heavy rail was made. That decision unleashed major changes throughout the company. By the middle of 1990, the organizational structure had shrunk by almost 30 per cent. Functional units were reduced mainly in areas related to the Superintendence of Engineering and Works (reduction of 40 units), Industrial Engineering (decrease of 6 units), and Adjunct Directorate (reduction of 4 units).

One analysis of what one sees in Beta is of management going a step too far. Faced with a competitive market and international competition, the removal of government's protective mantle prompted Beta's management to over-react. The decisions they took to take out functions completely may be described as a form of "over-reach" (Wilson et al, 1996). This process is where organizations can 'overbalance' from decisions made by their managers. They go a step too far, from which it is virtually impossible to retract. The decisions are both disproportionate (or out of proportion to the problem in question) and become irreversible. Alpha, on the other hand, maintained its overall functions profile. It kept changes within proportion and, arguably, relatively reversible. So, the major influence over structure appears in neither case solely to the privatisation. The *direction* of the structural changes is, of course, a function of becoming closer to market, so inevitably decentralization is a common management strategy. But the degree to which decentralization occurs seems not to be a function of ownership

change and market deregulation. It is far more a function of management. From this perspective, then, privatisation is more of a residual variable. It is the common context for these (and other) firms. The immediate influence on structure appears to be management. As one shall see in later sections, the impact and effect of this management agency on the workforce was deleterious in Beta.

8.3.2. Strategy

Alpha's corporate strategy, through its so called "YEAR 2000" plan, aims to exploit opportunities related to diversification, vertical integration, acquisitions, and partnerships. Potential areas for development of new businesses are engineering, data processing, equipment, consulting, industrial maintenance, transports and mining. Alpha envisages the development of new products such as ceramic bricks, fertilizers, pipes, steel structures, chemical products from coal and so on. Alpha has been acquiring shares of other companies that bear synergy with the company core business. Also, the company wants to strength its customer links, improve relationship with financial market, increase the output of higher value-added products through a technological upgrading.

Beta's strategy stresses a greater engagement with customers and suppliers through partnerships and agreements of mutual interest. The company aims to widen its range of steel products that are being produced, prioritizing those with higher value-added.

Both companies' strategies raise basic questions concerning the influence of privatisation and management. Decisions on strategy appear to be affected by management agency and also by the change in ownership. Change in ownership has allowed both firms greater freedom and autonomy to establish, for example, partnerships and alliances that were quite restricted before privatisation due to government regulations.

Also, analysis of strategies followed by both companies' management seems to be greatly influenced by the increased market competition, deregulation and a need to exploit the business opportunities available. Alpha's management has been particularly skillful and diligent in taking advantage of the post-privatisation

favourable circumstances. Beta's management also has been able, in a smaller scale, to take actions seeking to exploit new business grounds.

8.4. Competitiveness and productivity

Influences on productivity (quantity) - mainly internal

8.4.1. Workforce

Alpha's workforce has been reduced gradually since the beginning of the decade. In 1991, the workforce stood for 12,480 employees. However, in 1995 the number of employees dropped to 9,890. The company's workforce was reduced by about 25 per cent over a five-year period.

Beta underwent a drastic reduction of its workforce, even before privatisation. It reduced its workforce by more than 40 percent over the last five years. In 1994, the workforce accounted for 3933 employees down from 6703 in 1989. The uproar caused was felt intensely within the company as well as in the surroundings. The town that houses the company had problems as many of its residents work directly or indirectly for the company. As unemployment rose the local businesses saw their sales drop. The major tax contributor to the town is Beta. It plays a very important role in the health of the local economy.

As the restructuring program is underway more job losses are expected to happen in the coming years. The uncertainties and constant changes brought about demotivation and apprehension. Most of Beta's employees are disenchanted with the company. Many of them have sold their shares acquired during the privatisation. It seems that changes brought about by the company's management has been disproportionate and the workforce has carried the burden.

8.4.2. R&D and Technological capabilities

Technology is another factor considered by both companies to be fundamental to any serious improvement in performance and competitiveness. In terms of discourse, one can feel quite impressed by the commitment expressed by both firms. But reality is not quite

like that. There are palpable differences between the two companies relative to their technological apparatus as, for example, in terms of having a technology center and technical information department. Alpha has a much better technological structure and has been able to upgrade some of its products and sell technological assistance services more consistently.

Despite this relative success, there is a group of people in those organizations that is firmly against expending resources to develop new products and processes. The most common reason put forward is that it is much cheaper to buy technology from an outsider than develop it. As a short-term approach this can be true. Yet as a long-term strategy it is questionable as the company will probably never be able to have any product at the top of the market range and at the same time will depend constantly on the supplier. Continuous dependency is a risky strategy as the supplier might change its mind and refuse to sell a more up-to-date technology.

Over the last years, R&D expenses by the two Brazilian steel producers have been less than 0.6 percent of total sales. When compared with the major Japanese steelmakers, this figure seems quite small. In 1987, these companies expended on average about 3.0 percent of total sales on R&D (Bowonder and Miyake, 1990). So it is no surprise why Japanese steel companies are in the forefront of technological development, displaying some of the most advanced products and processes worldwide.

Besides R&D, there are other characteristics that describe the technology factor. Number of patents, royalty income and licensing, percentage of sales and number of qualified scientists and engineers are among those features that allow one to measure and evaluate if a company is as committed to technology as it says. At present, there is an evident difference between the two case studies concerning their outcome relative to technological achievements. Alpha has been able to develop indigenous technology in its research institute and render technological services to some Brazilian and foreign companies. On the other hand, Beta is far behind compared to Alpha. It has not been able to develop in full its technological capability potential primarily due to lack of resources and uncertainties that have hampered any serious attempt to set up a technology center.

Technological upgrading is another element to be considered. Alpha has established major partnerships with Brazilian and foreign companies seeking to improve its technological capability. It has a long established relationship with a Japanese Steel Corporation which has been one the main suppliers of hardware and software in technology. These partnerships and its Steel Technology Center have been the source that provide the company with the necessary conditions to upgrade its range of products. As a result, the mix of products available for customers is becoming increasingly more sophisticated. Given that, the company aims to further its higher value-added products' availability as these products can bring a greater profit margin.

There has been a stronger emphasis on applied research at the cost of basic research projects. Alpha's technological capabilities have been enhanced through new partnerships established in 1992 with British Steel, Ahlstrom Equipment, Hitachi, Nippon Steel, and Chugai-Ro. The company is investing in new hardware to upgrade the mix of products, eg electrogalvanized production line.

Beta is not very strong in R&D. It lacks an adequate Research Centre, a Technical Information Department, and a firm commitment from the top management to invest time and money in R&D. Beta's technological capability to a certain extent is dependent on other Brazilian steelmaker as well as some foreign companies. The company does not have as many technological partnerships as Alpha. In this moment of transition, it does not seem that enhancing technological capability as being a major priority.

8.4.3. Production capacity

Alpha's production capacity remains almost unchanged for the time being. However, expansion is underway to match the growing demand from carmakers and other sectors.

Beta's production capacity has been stable around 2.0m tonnes. In 1994, as a result of revamping its blast furnace, production dropped to 1.65 million tonnes of steel. From 1995 onwards, the company expects production to increase faster to meet the increasing demand.

8.4.4. Finance/investment

Alpha's investment programme has focused on projects related to technological modernization, production capacity maintenance, environment protection, and production expansion. It has invested in a electrolytic galvanizing line. Also, it has acquiring stakes in other companies.

Beta's has a programme of investment concerning the environmental preservation, technological modernization, and production capacity maintenance. In 1994, the company carried out a major revamping of its blast furnace.

Influences on productivity (value/unit) - external and internal

8.4.5. Products

Alpha has a range of products with higher value-added than Beta. The latter produces mainly steel commodities: billets, blooms and slabs. The different product-mix affects profitability of both companies as the highest value-added products provides greater profit margins.

Alpha is set to continue upgrading its product-mix towards a higher value-added range of products, mainly to supply the automotive industry.

8.4.6. Price/deregulation

Domestic steel prices had been over a long period of time under a severe constraint imposed by the Brazilian government. The alleged objective was to help controlling the inflation. While the domestic steel prices were kept under artificial cap, the state-owned steel companies bore heavy losses. In 1991, after the liberalization of prices, steel companies achieved higher profits.

Privatisation, coupled with deregulation and a market-oriented economy approach, has been an important drive to many government policies from all over the world. According to Hamish McRae (The Independent, 23 July 1996), "the key point is that privatisation is a

leveller. For all the flaws of the actual process by which firms are privatised and for all the deficiencies in regulation and corporate governance that it has revealed, it is one of the key aspects of the marketisation of the world economy: the creation of a more level playing field between the developed and the developing world."

According to Wilson (1992), the process of deregulation along with privatisation has forced changes on many business sectors that before were comfortably protected by monopoly rights. Over almost two decades the process of deregulation and privatisation have profoundly changed the British economic scenario.

Deregulation of the Brazilian steel industry has been prominent. It has provided the necessary conditions to foster competition, increase in investment, reduction of import tariffs, and red tape.

8.4.7. Market strategy

Alpha's market strategy has focused on establishing major partnerships with customers, suppliers and intermediaries. It bought stakes in a number of companies that bear some links with its core business.

Beta's market strategy, over the past years, has been concentrated on increasing its sales abroad due to a sluggish domestic market. In the domestic and international markets Beta is compelled to pursue a cost-based strategy because of the commodity type products it manufactures. Now that the internal market is recovering, probably the company is going to divert a growing proportion of its production to the Brazilian market. Further, partnerships are probably going to be established with customers, suppliers and intermediaries.

8.4.8. Relationship with customers

Both companies are seeking a better relationship with their customers. Alpha is doing this through a series of actions such as joint programmes, development of products and businesses in partnership and technology transfer and collaboration.

Beta is looking for a much closer relationship with customers through a programme of regular visits, exchange of experience and knowledge.

8.5. Performance

8.5.1. Labour productivity

Alpha's productivity has increased steadily reaching 446 m.tonnes per man-year in 1994. It rose by about 20 per cent over a five-year period. Most of the improvement can be explained by the reduction of workforce and improvements in working practices and hardware.

Beta's productivity has increased since the beginning of the 1990s, attaining 341 m.ton per man-year in 1993. It rose by about 60 per cent over a four-year period. However impressive, the figures are well below Alpha's productivity. Most of the improvement achieved is deemed to be related to deep cuts in the workforce and better working practices and hardware.

8.5.2. Costs

Alpha's cost advantage is mainly due to its strategic location near deposits of iron ore and major domestic consumers, growing productivity, low labour costs and a relatively modern plant. Its cost of products and services as a percentage of net revenues has been stable. Labour cost savings achieved more than 5 per cent as a percentage of operating costs.

Beta's cost advantage is related to low raw material and labour costs, and strategic location. Its cost of product and services as a percentage of net revenues has increased. Labour cost savings achieved more than 30 per cent as a percentage of operating costs over a four-year period.

8.5.3. Sales/domestic market share

As the domestic economy shows signs of improvement, Alpha has diverted production to supply primarily the internal market,

pushed by the car industry. Also, sales (value) per employee rose by more than 50 per cent over the last five years.

Beta's sales have increased steadily from 1991 until 1993. In 1994, due to maintenance requirements to overhaul the operational units of the steelworks, sales dropped to 1.63 million tonnes of steel, down from 2.10 million tonnes in 1993. Further, sales (value) per employee rose by more than 75 per cent over a five-year period.

Alpha's domestic marketshare has been stable. It can be explained by product quality, price, and delivery. There is an increasing in market share on higher value-added products.

Beta's domestic market share has been relatively stable over the last four years. In 1994, it reduced due to a fall in production related to the revamping of its blast furnace.

8.5.4. Exports

The recovery of the Brazilian economy and increasing steel demand, led Alpha to divert a bigger share of its production to the internal market at the expense of exports.

Beta's exports have been on the increase since the outset of this decade. In 1994, due to maintenance requirements, exports dropped to one of its lowest figures, 0.97 million tonnes of steel down from 1.34 million tonnes in 1993. However, exports as a percentage of total sales have been stable.

8.5.5. Profitability and asset turnover ratios

Alpha's profitability ratios have improved since the outset of the 1990s. PBIT/total assets and PBIT/sales ratios have increased by about 40 per cent over a five-year period. Sales margin rose by more than three times and return on equity more than two times over the same period. Asset turnover has worsened. It decreased by more than 30 per cent. As a whole, these figures show a company with a sound situation taking into account a five-year period.

Beta's profitability ratios have worsened since 1991. PBIT/total sales, PBIT/sales, sales margin and return on equity have decreased steeply over a four-year period. Asset turnover has been stable. These figures are not good. It shows a company undergoing a number

of changes such as restructuring, privatisation, replacement of the Board of Directors, shareholding disputes, and re-routing of its businesses.

8.5.6. Profits and Earnings per share (EPS)

Alpha's profits have increased since 1990, when the company had losses. In 1993, two years after privatisation, profits reached 20% up from 6% of net revenue in 1991. Between 1993 and 1995, profits figures have stayed around 20% of net revenue. The company's turnover reached $1.9 billion and profits $423 million in 1994.

Beta's profits, differently from Alpha, have been unstable since the beginning of the 1990's. It started with losses in 1990, had a steep increase in 1991, to fall again in 1992. In 1994, profits reached just 1.8% of net revenues down from 13% in 1993. The company's turnover reached $710mi and profits $9.7mi in 1994.

Alpha's earnings per share (EPS) have increased steadily since the beginning of 1990's. It rose fivefold between 1991 and 1994. According to figures 6.14 and 6.15, there seems to be a correlation between profits and EPS.

Beta's earnings per share, as happened with profits, have been unstable from the outset of the 1990's. In 1993, the year when the company was privatised, the earnings per thousand shares reached US$0.26 up from US$0.20 in 1992. In 1994, it was US$0.05 per thousand shares, around fivefold less than in the previous year. The explanation resides in the drop of production and profits. It seems to early to foresee any trend related to EPS.

8.5.7. Value added

Alpha's value added has been stable around 40 per cent. On the other hand, Beta's value added has decreased over the last four years. These figures show that Alpha's operating costs have been stable while Beta's operating costs have increased. It shows problems related to Beta's management.

8.6. Conclusions and indications for future research

Comparisons of the two cases reveals that the influence of privatisation at the company level is rarely, if ever, direct. Changes of ownership and direction can set the agenda for the direction of the changes, but appear not to constrict or restrain managers in their choice of implementation of strategies (Wilson, 1992). As Galal (1993) states of other "Latin" privatisations "... (it is) merely one act in a larger play - a lesson most developing countries have been slow to grasp."

The cases act as examples of relatively more successful change (Alpha) and rather less successful change (Beta). The comparisons reveal some stark differences between the firms. Most revealing of all, perhaps, is the centrally important role played by corporate strategy in both cases (a finding supported by Pettigrew and Whipp, 1990). Both Alpha and Beta had identifiable corporate strategies (see Tables 8.1 and 8.2). But privatisation for Alpha meant that its managers could shake off some of the shackles of regulation and exploit new business opportunities, especially in partnership.

Company Alpha's strengths in technological and management capability and high value added products also contributed to the strong productivity and financial performance before, during and after privatisation. This performance and the technology collaboration with a foreign partner who continued to hold a minor equity stake in the company also explain the limited government interference in the management of the company before privatisation.

Alpha claims to be in a better position to use its strengths to benefit from improvements in the Brazilian and other Latin American economies, developments in the Brazilian automobile, consumer durables and construction sectors and Brazil's membership of Mercosur. It has become more responsive to customers, more entrepreneurial in developing products and seeking out customers and has developed closer ties with major customers such as car producers.

Company Beta's performance was weak before privatisation and remained weak during the privatisation process and immediately after. Before the privatisation weaknesses in management, commodity type low value added products and shortage of funds to

expand and upgrade capacity were some of the major problems. These were compounded by greater government interference arguably because the company was more dependent on the government for financial support. The poor performance has continued after privatisation largely, because the company has not been able to improve its productivity sufficiently to be cost competitive in commodity type markets.

For Beta, privatisation merely added to a corporate strategy which was arguably already going wrong. Downsizing and the reduction of functional specialisation resulted in a marked diminution of core competences. Recourse to shareholding strategies brought further problems.

Beta was troubled by shareholding disputes after privatisation. Its main shareholder - GMJ - after the change in ownership, turned out to be in a big financial crisis. After some months of dispute, eventually GMJ was obliged to sell its stake in the company and to withdraw its representatives from the Administrative Council and Board of Directors.

Beta claims that the freedom from government ties will enable it to be more responsive to customers and changes in market conditions. However, because of the nature of its products, lack of competitive advantage and poor performance, in the short term, the main focus has been on crisis management.

Both companies accelerated their programme of reducing the labour force during the restructuring and privatisation to improve productivity and competitiveness. Alpha ahs attained standards comparable to industrialised steel producing countries. Beta has had to make much bigger cuts in its labour force but its productivity levels still remain low in comparison with Alpha and international competitors.

So, at the company level, managerial agency appears to have the greater influence over strategic direction and performance of the firm. The process of privatisation has merely given the direction and context for those changes. The relative lack of success of Beta, when compared to Alpha, appears almost wholly due to management strategy rather than privatisation.

Indeed, there is strong supporting evidence for this conclusion since Beta's management was already pursuing strategies of

downsizing and reduction in the functions prior to privatisation (whether they were doing this in anticipation of privatisation is impossible to tell). So, strategy in Beta post-privatisation became dominantly (but not wholly) more of the same. Privatisation provided a new context in which the existing portfolio of strategies could be pursued in greater breadth and depth.

To a large extent, the management strategies pursued in Beta post-privatisation exacerbated a cost-cutting frame of mind that was always in place. For example, labour productivity in both firms rose post-privatisation, but Alpha's came from modernization and expansionist strategies, whilst Beta's were rooted in cost reduction through workforce cuts. Labour cost savings were 30 per cent (of operating costs). Alpha's were 5 per cent. Such cost reduction strategies have a finite life - there is a point beyond which it is impossible to progress - and in Beta's case this seems to have been accelerated by the privatisation process. At present, Beta is holding ground especially by developing its export markets, but the financial performance data indicate a firm which soon may be in trouble. For example, PBIT/Sales and PBIT/Sales margin as well as ROE have decreased markedly (more than four times) over the last four years. Earnings per share have also been inherently unstable in Beta, whilst Alpha's have increased steadily.

Since Chapter Six indicated that overall profits and earnings per share seem to be co-related, the long-term prognosis for Beta does not seem particularly good, especially in the context of increasing operating costs.

Returning to the research questions raised at the beginning of this thesis, the data from the two Brazilian firms support the view that managerial agency rather than privatisation per se is the key influence over both what decisions are subsequently taken and over long-term performance. This raises a cautionary signal, particularly amongst those scholars who are anti-privatisation on social policy or political grounds. From this sample, one could conclude that the impact of privatisation and performance is relatively slight and indirect. There is no indication of 'sudden' exposure to competitive markets and the onset of Darwinistic economies of survival. These appeared to be happening *before* privatisation. What privatisation did do was to accelerate the change process by forcing management's

hand to make quicker decisions - especially over markets and customers (Bishop and Thomson, 1992).

The research agenda for future comparative studies of privatisation is clearly not only multi-variate, but also the current study would indicate the central and pervasive role of managers and management strategy in the ultimate success (or lack of it) of the firm. Future research on larger samples of firms in different sectors and nations may reveal to what extent these conclusions hold true of the privatisation process more generally.

Based on the analytical framework used in this study as well as the conclusions, it is clear that future studies of the effect of privatisation on companies should examine a number of quantitative variables and qualitative indicators. The company analysis framework developed as a part of this thesis provides a useful tool for such analysis. Further refinement of the framework would require more precise modelling of the quantitative relationships (for example between productivity and performance indicators) and more systematic and sophisticated mapping of the relationship between the qualitative changes and their impact on productivity and performance.

APPENDIX I

I.1 INTERVIEW SCHEDULE IN ENGLISH LANGUAGE

Summary of the company

We would like to know the main characteristics of the firm before and after privatisation. Please answer each of the following items:

1. Company history and position in the steel sector
   * When was the company inaugurated?
   * Where is it located?
   * Other information.

2. Ownership structure of the firm
   * Percent of capital provided by the Brazilian Government?
   * Percent of capital provided by other main shareholders?

3. Size of the firm
   * Total capital in $/£
   * Asset value in $/£
   * Annual sales in $/£
   * Annual profit in $/£

4. Distribution of the customers
   * Annual sales to Brazilian customers
   * Annual sales to Foreign customers
     - South America
     - North America
     - Europe
     - Asia
     - Other

5. Distribution of the suppliers
   * Annual procurement from Brazilian suppliers
   * Annual procurement from Foreign suppliers
     - South America
     - North America
     - Europe
     - Asia
     - Other

6. Main products of the firm
   * Plates in tonnes
   * Hot coils in tonnes
   * Hot sheets in tonnes
   * Black plates in tonnes

* Other

7. Technology
   * What kind of technology has the company adopted?
     - Basic oxygen steel-making process
     - Electric furnace
     - Continuous casting techniques
     - Other
   * Changes in technology
   * Expenditure in R & D
   * Is the company's production line up-to-date in technology terms?

8. Market
   * Who are the main customers?
   * Who are the main suppliers?
   * Who are the main competitors?
   * What is the company's Brazilian market share?
   * What is the company's Foreign market share?
   * What is the growth in sales and market share? Brazilian and Foreign?
   * What is the return on capital?

9. Environment
   * What is the company doing for environmental protection?
   * How much has been invested to protect the environment?
   * What kind of equipment has been installed?
   * What is the company-ecologist relationship like?
   * What does ecology mean to the company?

10. Organisational structure
    * What are the levels of formalisation: written rules and procedures?
    * What is the level of centralisation versus decentralisation?
    * What are the vertical and horizontal channels of information and authority?
    * Other information.

11. Management style
    * What kind of management style has the company: democratic, autocratic, paternalistic?
    * What is the nature of supervision: close or responsible autonomy?

12. Finance strategies
    * Sources of funds

* Capital structure
* Dividend policy
* Other

13. Marketing strategies
    * For differentiating and positioning
    * For new products and services
    * Through product life cycle
    * For the global marketplace
    * Other

14. Competitive strategies
    * Rivalry among existing firms
    * Bargaining power of suppliers
    * Bargaining power of buyers
    * Threat of substitute products or services
    * Threat of new entrants
    * Other

15. Human resources strategies
    * Total number of employees
    * What are the policies and procedures for admission, rewards, training, evaluation, promotion, transference, dismissals, etc.
    * Other

Impact on Privatisation

1. Description of the privatisation process (both formal and actual): main stages, procedures adopted, changes, etc.

2. Circumstances in which privatisation was introduced: economic, political, social, technical.

3. In what terms (documents, communications, statements, etc.) was the decision expressed? Justifications and reasons offered to employees, to the public, to the customers, to the suppliers.

4. Composition of project or 'expert' teams established to implement privatisation?

5. Other participants in implementation (including unions and employee representatives)?

6. What are the main shifts related to company's strategies, organisational structure, cultural direction?

7. Did the company become more market-oriented, less dependent on subsidies, increase independence and freedom, improve access to capital markets and finance, become more market-sensitive and cost consciousness?

8. Has international expansion been a real possibility after privatisation?

9. What's happening as regards price controls and other restrictions on operations?

10. What is the level of relationship with the government like?

11. Company objectives before and after privatisation related to
* export marketshare
* internal marketshare
* export sales
* profitability
* productivity
* innovation process
* technological leadership

12. Strategies adopted/being adopted before and after privatisation related to
* number of products
* customer service
* quality control
* channels of distribution
* segments of market
* delivery

Competitiveness

1. What does the company understand by competitiveness?

2. What is(are) the fundamental(s) issue(s) concerning the company's competitiveness?

3. What have been the measures adopted to increase the company's competitiveness?

4. Circumstances in which competitiveness could be improve?

5. What are the main factors that can intervene to improve a firm's competitiveness?

6. What is the significance of the following factors for competitiveness improvement:

* technology, innovation, capital investment, human resources, education and training, business environment, government policies, management performance, creativity, changing environment.

7. What are the factors used by the company to evaluate competitiveness? For example:

* export/import marketshare, export dependency, export growth, profitability, productivity, capital cost, labour cost, price competitiveness, technology indicators, economies of scale and scope, R & D investment, quality competitiveness, commitment to customers and suppliers, closeness to customer, domestic market competition, etc.

8. What is the definition of productivity adopted by the company, and how is it related to competitiveness?

9. What are the main actions carried out by the company to involve its personnel regarding the competitiveness issue?

10. What is the company's competitiveness level compared with that of Brazilian and foreign competitors?

Conclusions

1. Can you indicate your current position in the company
   (1) President
   (2) Vice President
   (3) Superintendent
   (4) Senior Manager
   (5) Chief of Department
   (6) Chief of Division/Service
   (7) Other, please specify

2. How many years have you worked for this company?
   (1) Under 2 years
   (2) 2-5 years
   (3) 6-10 years
   (4) 11-15 years
   (5) 16 years and above

3. Have you any comments to make? If so, please state.

I.2. INTERVIEW SCHEDULE IN PORTUGUESE LANGUAGE

SUMARIO DA EMPRESA

1. HISTORICO DA EMPRESA
   * Quando foi inaugurada?
   * Onde está localizada?
   * Outros dados gerais.

2. ESTRUTURA SOCIETARIA
   * Principais acionistas antes/depois de 1991

3. TAMANHO DA EMPRESA
   * Total dos ativos?
   * Vendas anuais?
   * Lucro liquido anual?
   * Capital liquido?

4. DISTRIBUIÇÃO DOS CLIENTES
   * Vendas anuais para clientes brasileiros
   * Vendas anuais para clientes estrangeiros
     - America Latina
     - America do Norte
     - Europa
     - Asia
     - Outros

5. DISTRIBUIÇÃO DOS FORNECEDORES
   * Compras anuais de fornecedores brasileiros
   * Compras anuais de fornecedores estrangeiros
     - America Latina
     - America do Norte
     - Europa
     - Asia
     - Outros

6. PRINCIPAIS PRODUTOS DA EMPRESA
   * Chapa grossa
   * Bobina a quente
   * Chapa fina a frio
   * Outros

7. TECNOLOGIA
   * Qual o tipo de tecnologia que a empresa vem adotando?

* Mudanças tecnológicas sofridas pela empresa nos últimos anos?
* Está a empresa atualizada em termos de tecnologia se comparada com concorrentes estrangeiros?
* Quanto a empresa dispende em pesquisa e desenvolvimento?

8. INOVAÇÃO TECNOLOGICA

* O que a empresa vem fazendo em termos de inovação tecnológica?
* Pode-se aumentar o nível de competitividade através dos processos de inovação tecnológica?
* Acordo de transferência tecnológica entre empresa nacional e estrangeira pode ser visto como uma ferramenta para a melhoria do processo de inovação?
* O que a empresa vem fazendo para melhorar e estimular o processo criativo e inovador junto aos seus funcionários?

9. MERCADO

* Quais são os principais clientes?
* Quais são os principais fornecedores?
* Quais são os principais competidores?
* Qual é a participação da empresa no mercado brasileiro?
* Qual é a participação da empresa no mercado estrangeiro?
* Qual tem sido o crescimento das vendas e da participação de mercado?

10. MEIO-AMBIENTE

* O que a empresa entende por ecologia?
* O que a empresa vem fazendo para melhoria do meio-ambiente?
* Quanto está sendo investido em proteção ambiental?
* Que tipo de tecnologia ambiental vem sendo implementada?
* Como é o relacionamento empresa-ecologistas?

11. ESTRUTURA ORGANIZACIONAL

* Quais são os níveis de formalização: regras escritas e procedimentos?
* Qual é o nível de centralização versus descentralização?
* Quais são os canais verticais e horizontais de informação e autoridade?
* Outros dados.

12. ESTILO GERENCIAL

* Qual é o estilo gerencial que a empresa adota: democrático, autocrático ou paternalístico?
* Qual é o tipo de supervisão: autonomia responsável ou estreita?

13. ESTRATÉGIA FINANCEIRA

* Fontes de fundos
* Estrutura de capital
* Política de dividendos
* Qual tem sido o retorno sobre o investimento?
* Outras

14. ESTRATÉGIA MERCADOLOGICA

* Qual tem sido a postura da empresa em termos mercadológicos?
* Novos produtos e serviços, ciclo de vida do produto, mercado global, diferenciação, etc.

15. ESTRATÉGIA COMPETITIVA

* Em relação aos competidores atuais
* Em relação aos fornecedores
* Em relação aos clientes
* Em relação a potenciais competidores
* Ameaça de produtos substitutos
* Outros

16. ESTRATÉGIA DE RECURSOS HUMANOS

* Número total de empregados
* Quais são as políticas e procedimentos para admissão, treinamento, avaliação, promoção, transferência, recompensa, demissão, etc.

PRIVATIZAÇÃO

1. Quais foram as principais razões/objetivos que justificaram o processo de privatização?

* Baixa produtividade, elevados custos de produção, difíceis relações com o sindicato, baixo retorno sobre o investimento, ineficiente uso dos recursos da empresa, débil prestação de serviços aos clientes, tornar-se independente do governo, quebra do monopólio/oligopólio, etc.

2. Descrição do processo de privatização (formal e real): principais etapas, procedimentos adotados, mudanças, etc.

3. Circunstancias (contexto, conteúdo, processo) nas quais a privatização foi introduzida: econômicas, políticas, sociais, técnicas.

4. Em que termos (documentos, comunicados, declarações, etc.) foi expressa a decisão de privatizar? Justificativas e razões dadas aos empregados, ao público, aos clientes, aos fornecedores.

5. Composição do projeto ou grupo de especialistas responsável pela implementação do processo de privatização?

6. Outros integrantes no processo de implementação (sindicatos e representantes dos empregados).

7. Quais foram as razões para o sucesso/insucesso do processo de privatização?

* Adequada preparação, suporte popular, método de venda da empresa, gerenciamento correto de todo processo, redução do quadro de pessoal, competência do governo na condução do processo, etc.

8. Com a privatização, quais foram as principais mudanças nas estratégias da empresa, estrutura organizacional, processo decisório, dentre outras?

9. Com a privatização, a empresa tornou-se mais orientada pelas necessidades de mercado, menos dependente de subsídios, teve aumentada a independência e liberdade para agir, aumentou o acesso ao mercado de capitais e financeiro, tornou-se mais preocupada com os custos?

10. Tem sido a expansão internacional uma possibilidade real após o processo de privatização?

11. Qual é a situação atual da política de controle de preços e outras restrições às atividades operacionais?

12. Com a privatização, como ficou a relação com o governo?

13. Objetivos da empresa antes e depois da privatização, com relação a:

* participação no mercado externo
* participação no mercado interno
* exportação
* lucratividade
* produtividade
* inovação tecnológica
* liderança tecnológica

14. Quais foram/são as estratégias adotadas antes e depois do processo de privatização com relação a:

* número de produtos
* controle de qualidade
* serviço ao cliente
* canais de distribuição
* segmentos de mercado
* sistema de entrega

15. Em linhas gerais, quais foram os prós e contras de todo o processo de privatização?

COMPETITIVIDADE

1. O que a empresa entende ser competitividade?

2. Qual o problema básico ligado à questão da competitividade?

3. O que vem sendo adotado no sentido de melhorar o nível de competitividade da empresa?

4. Circunstancias nas quais o nível de competitividade pode ser melhorado?

5. Quais são os fatores básicos que interferem na melhoria da competitividade empresarial?

6. Qual o papel que os seguintes fatores podem desempenhar na melhoria da competitividade:

* Tecnologia, inovação, investimento de capital, recursos humanos, ambiente de negócios, educação e treinamento, política governamental, performance gerencial, ambiente propício às mudanças, creatividade, etc.

7. Quais são os fatores utilizados para se medir o nível de competitividade?

* Participação no mercado externo/interno, dependência das exportações, crescimento das exportações, lucratividade, produtividade, custo de capital, custo de mão-de-obra, preço, indicadores de tecnologia, investimento em ciência e tecnologia, economias de escala e escopo, proximidade com o cliente, qualidade, comprometimento de longo prazo com clientes e fornecedores, competição no mercado doméstico, etc.

8. O que a empresa entende ser produtividade e de que forma esta se relaciona com o nível de competitividade?

9. O que a empresa vem fazendo para conscientizar/envolver gerentes, chefias, funcionários para a questão da competitividade?

10. Qual o nível de competitividade da empresa em relação aos concorrentes estrangeiros e brasileiros?

DADOS GERAIS

1. Qual a sua posição atual na empresa?
   * Presidente
   * Vice-presidente
   * Superintendente
   * Gerente Geral
   * Chefe de Departamento
   * Chefe de Divisão/Serviço
   * Outra, favor especificar

2. Há quantos está trabalhando nesta empresa?
   * menos de 2 anos
   * 2-5 anos
   * 6-10 anos
   * 11-15 anos
   * 16 anos ou mais

3. Comentários finais

APPENDIX II

TECHNOLOGY TRANSFER

A number of strands in the strategy and economics literature emphasise the importance of capabilities and strategies at the enterprise level, including technological aspects, in explaining their own performance as well as the performance of the economies in which they operate (Rumelt,1984; Teece,1986 and Porter,1990). Lall (1992) considers technology transfer issues for firms in industrialising countries which is the focus of this section.

Technological knowledge is not shared equally among firms. Nor is it easily imitated by, or transferred across firms. Transfer requires learning as technologies are tacit and their underlying principles are not always clearly understood. Acquiring a new technology and gaining mastery of it requires appropriate cultural, institutional and market contexts, strategies, skills, effort and investment by the receiving firm. The extent of competence achieved is uncertain and necessarily varies between firms according to the existing capabilities, objectives and strategies and the external context. These features of the process of technology transfer are recognized by a number of authors (Pavitt, 1985 and Afriyie, 1988).

Definitions

The term *technology transfer* is used to describe the acquisition and application of technology. In practice, developing technological capabilities are not a one-shot effort as the term technology transfer implies. It is a complex long-term process with various levels of technological competences such as ability to use the technology, adapt it, stretch it and eventually to become more independent by developing and designing technology.

For Dahlman et al (1987) and Lall (1992), technology transfer is understood as a long-term process of developing technological capabilities that demands effort and determination to acquire the suitable hardware and knowledge.

For many the technology transfer process involves reaching a certain purpose, use, and profitability (Dearing, 1993; Gee, 1993; Marchetta et al, 1993; Johns, 1992).

The fundamental problem of technology transfer is related to reducing the differences between parts; differences that already exist between nations, cultures, institutions, organizations and individuals. The aim is to negotiate strategies that help the reduction of these gaps among the participants. For Dearing (1993), the main characteristic of technology is its use or purpose. Bearing this in mind, technology transfer is the process of communication of information that will be put in practice, in use.

So technology transfer implies the transference of technology from where it is created to where it is demanded. Gee (1993) understands technology as being a set of knowledge contained in the following forms:

> *'1. technical ideas, information or data; 2. people: personal technical skills and expertise; 3. physical models: prototypes, designs, computer codes, etc'*

Following the same track, Johns (1992) defines technology transfer as being a transfer of a process or particular equipment from one company to another. The former is willing to share with the latter, its expertise in similar activities. By and large, major technology transfers to be successful, should solve the problems of distance and also of culture.

From this stance, Marchetta et al (1993) consider the technology transfer as a process that brings not only the cultural issue to the stage but technical and scientific heritage as well. All these aspects when well-interconnected are useful to bring ideas to the reality of economic activities of production and services. Technology transfer effectively has real significance when it is capable of satisfying the parts involved through compensating them with a certain profitability.

The issue of technological development, according to Dahlman et al (1987), is first related to acquiring the right capabilities to ensure efficient production and investment. Second, combining foreign and local technological elements in such a way that gradually helps

indigenous capabilities to be more efficient. Third, the technological capability comes from a long-term commitment to conscious efforts, to aggregate skills and the ability to take advantage of challenges and new opportunities. Fourth, the economic environment is important as an indicator for the economic agents as long as it shows the way firms use and adapt technology through incentives and penalties.

When a company chooses a certain technology, it is looking for more than how to do something at particular costs, benefits, and engineering norms. It is concerned with acquisition of the right capabilities that would enable the company to go ahead to new activities. It is not an easy undertaking to decide

> *'which technologies to choose, which to abandon, which to upgrade, which to replace by newer technologies. Properly assessing and choosing new technology thus require substantial effort'* (Dahman et al, 1987).

The task of assessing and choosing the best technology that satisfies the necessities of a certain environment implies four different steps. The first one is related to identifying indigenous needs and conditions. It means that the parts involved in the process should be aware of the pitfalls connected with transferring technologies from one environment to a different one where the technology normally needs to be adapted to satisfy the domestic demands. The second step in seeking better and more suitable technologies is concerned with the amount of information necessary to reach all technological possibilities available both at national and international levels. The third step is related to choosing from amongst all technologies ready for use one that can brings the best results in terms of cost-benefit analysis. The last step looks beyond the methods of evaluation, aiming to assess various technologies to find which ones can offer more possibilities than others. It means choosing the technology that brings about most benefits both to the company and to society as a whole (Dahlman et al, 1987).

In other words, technology transfer is not just buying a package containing instructions, data and so on and then doing-it-yourself. To be successful it needs much more than that. It requires a great deal of expertise, preparation, open-mindeness, technical education and

training, internal culture towards technology, and a minimum infrastructure to give support to people and to build a information system able to record all the main stages of the process over time. It demands a long-term commitment and all kinds of resources (material and human) to obtain an expected result through the technology transfer process pyramid.

Technology transfer and levels of capability

Developing technological capabilities is not a one-shot effort as the term technology transfer implies. It is a complex long-term process with various levels of technological competencies such as the ability to use the technology, adapt it, stretch it, and eventually to develop, design and sell it. Table AII, which sets out different levels of process and product capabilities, is used as a framework for explaining developments in a Brazilian steel company. At the simple routine level, operating a process requires some fine-tuning, solving any small problems that arise, effective maintenance and ensuring that quality is up to standard. Learning and developing an understanding of the process technology are important aspects of this phase. Minor adaptations to products to suit market needs and understanding product design are also parts of learning during this phase.

The assimilation and capabilities required during the 'basic' phase enable development of the 'intermediate' stage. The term 'equipment stretching' in the exhibit refers to expansion in capacity and production through changes in operations and technological enhancements without major investment expenditure. Such adaptations clearly require a thorough understanding of the processes being adapted. Another feature of this phase is often improvements in the quality of the product. In addition, the capabilities developed in relation to the initial processes and products enable a better understanding of what technologies and products are required and their assimilation.

There are also differences between the three phases in the 'management and control' requirements and the nature of 'external linkages.' With management and control, the emphasis at the basic stage is on making things work efficiently at the factory floor level.

However, at the intermediate level, monitoring productivity changes resulting from adaptations and using the evidence from such monitoring to make further improvements becomes more important. At the basic as well as the intermediate stage, the enterprise has to remain sensitive to market conditions with the objectives of maintaining and enhancing the competitiveness of its products in price and quality and developing new products and markets. At the 'advanced' stage even closer co-ordination is required between process and product innovation and commercial and marketing strategies. The direction of research and innovation efforts is guided by identification of profitable markets and customers.

The external linkages with technology suppliers are clearly important at the basic stage during which they are often responsible for the supervision and training of the employees of the technology-acquiring firm working on relatively routine tasks. Generally, the more complex the technology and the lower the technological base from which the acquiring firm starts, the longer the period of supervision and training will have to be. At the intermediate stage, the relationship with technology suppliers is more of a partnership and at the advanced stage the technology-acquiring firm may itself become a seller of technology. At the intermediate as well as the advanced stage, depending on market conditions, the technology-acquiring firm may also form strategic alliances with technology suppliers, competitors and customers to develop new products, processes and markets.

Table A1 Levels of technological capabilities

LEVEL OF CAPABILITY	PROCESS	PRODUCT	MANAGEMENT AND CONTROL	EXTERNAL LINKAGES
BASIC SIMPLE ROUTINE (Experienced based)	Debugging, balancing, quality control, preventive maintenance, assimilation of process technology	Assimilation of product design, minor adaptation to market needs	Work flow scheduling, time-motion studies, inventory control	Technology suppliers provide supervision and training, limited local procurement of goods and services
INTERMEDIATE ADAPTIVE DUPLICATIVE (Search based)	Equipment stretching process, adaptation and cost saving, licensing new technology	Product quality improvement, licensing and assimilating new imported product technology	Monitoring productivity, improved co-ordination	Partnership relationship with technology suppliers, increased local procurement, technology transfer to local suppliers
ADVANCED INNOVATIVE RISKY (Research based)	In-house process, innovation, basic research	In-house product innovation, basic research	Co-ordinating R&D and commercial strategies	Turnkey capability licensing own technology to others, co-operative R&D and commercial relationships with suppliers, competitors and customers

Source: Adapted from S. Lall, 'Technological capabilities and industrialisation' *World Development*, Vol. 20 No 2, 1992

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